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LIBRARY OF CONGRESS,
AUG 25 1913
SMITHSONIAN DEPOSIT

THE UNITED GAS IMPROVEMENT COMPANY,

PHILADELPHIA.

BUILDERS OF

THE STANDARD DOUBLE SUPERHEATER

LOWE WATER GAS APPARATUS.

ACCURATE MEASUREMENT

OF

AIR AND STEAM SUPPLY

(PATENTED),

AFFORDING { PERFECT CONTROL OF GENERATOR FIRE CONDITIONS.

PRODUCING { UNIFORM RESULTS. HIGHEST EFFICIENCIES.

THE AMERICAN GAS LIGHT JOURNAL

VOL. XCIX., No. 8. **NEW YORK, AUGUST 25, 1913.** WHOLE No. 1,994.

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Driving Textile Mills by Gas.

Mr. Sydney F, Walker, in discussing this subject in a recent issue of the *Gas World*, remarks that the driving of textile mills presents one of the most important and most difficult problems with which the mechanical engineer has had to deal, and has followed the progress of engineering science step-by-step. Steam engineering has advanced enormously during the last 30 years, largely in consequence of the competition of gas. Thirty or 40 years ago steam at 30 pounds per square inch was quite common in certain industries where large quantities of power were employed; to-day, 120, 150 and 200 pounds per square inch are quite common. Each advance in the steam pressure that could be employed was immediately adopted in the plant employed in textile mills, where other conditions allowed. When the compound steam engine was worked out, followed by the triple expansion engine, textile mills immediately adopted them, and the steam turbine, which claims still further economies in steam, has also been adopted for driving textile mills where other conditions have allowed.

The conditions for driving textile mills are severe, for the following reasons; first, because of the large proportion of power consumed by the shafting, which renders it absolutely necessary that power should be delivered to the shafting at the very lowest possible cost. Secondly, there is the question of the uniform speed for every machine.

In the case of cotton spinning mills, for instance, the more nearly each spinning machine approaches absolute uniformity in its working, the smaller will be the cost of the finished product, and the better will be the product itself. Investigations of recent years have brought to light phenomena that were not suspected, even by advanced mechanical engineers, known as "torsional vibrations." In every textile mill there are long lines of shafting, and power is taken from the shaft to the individual machines by means of belt. It is usual for each line of shafting to be driven by a belt passing over a pulley at one end. When power is first delivered to any shaft, the first action tended to twist the shaft—it is torsional. The power is delivered gradually to the machines taking it from that particular shaft, as what may be termed the torsional limit of each section of the shaft is reached. The length of shaft nearest the driving pulley commences to twist first. Owing to the nature of the material of the shaft the twist is not carried very far, and the motion is communicated to the next length of the shaft. This length, in its turn, takes up the twist, passing the motion on to the next length, and so on. This is not an accurate representation of what takes place, but it will serve as an illustration. How far the twisting action takes place in each piece of the shaft depends upon the diameter of the shaft, upon the power applied to it, and of the material of which it is made.

If this twisting action only took place when the shaft is first started, it would not be of much consequence; but a similar action takes place when any machine is thrown on or off. Suppose a machine at the far end of the shaft is stopped; it suddenly ceases to take power from the shaft, and a twisting action is set up in the shaft, in the same direction as that which took place when the shaft was first started. When the same machine is started again, and again takes power from the shaft, the twisting action is renewed, but in the reverse direction. In all the processes in textile mills it is a necessity that every machine shall be perfectly independent of all the others. The man minding each machine must be able to stop it instantly and start it instantly, In cotton spinning, for instance, it frequently happens that the threads break, and the machine must be stopped while the two ends are united; then the machine is restarted. It is of the utmost importance that starting and stopping shall be done quickly, and this means that these torsional strains, in opposite directions, are suddenly thrown upon the shafting.

It may happen that there are more and longer stoppages of a great number of machines on one particular day, or in one particular hour than another; but, as a rule, the average power taken is approximately the same, because when one machine is stopped another is in work; and, roughly, it may be taken that a certain number of machines are stopped during the whole of the working day.

Incidentally, the fact that there are a number of machines stopped for a certain time during the day reduces the efficiency of the mill—it reduces the output of the machines as a whole, and of each individual machine; and, therefore, increases the cost of the product. Notwithstanding the fact that the power taken by the whole of the mill, or by the machines on a floor, is approximately the same throughout the day, under any given working conditions, the distribution of that power from minute-to-minute varies very considerably.

The "torsional vibrations" referred to seriously affect the working of the machines. In a textile mills what is required is uniformity, in

every sense of the term. Every shaft and every wheel, every machine, must move at an absolutely uniform rate, if the best work is to be turned out and the largest quantity of work is to be obtained. The twisting action set up by the shafts is necessarily reflected in every machine taking power from the shafts. When the machines start, for instance, the power comes to each machine gradually, as the twisting action reaches its limit. When all the shafting is running at apparently normal speed, any twisting action impressed upon any shaft and reflected by the shaft upon the other machines that are still running, tends to upset the uniformity of motion. If several machines are thrown off together, there is a tendency for the shaft to race, and this twisting action comes into play, which causes a variation of the rate of motion of the machines still at work. This is still more apparent when machines that have been stopped are suddenly thrown on again. This twisting action is reversed, and the rate of variation in the moving parts of the machines is also changed; so that, where a machine may have adapted itself to the new conditions, they are suddenly changed by other machines being thrown off or on, and by the torsion in the shaft.

This is one reason that the electric drive is making way in textile mills. The electric motor can be divided up so that any machine, or any group of machines, can be worked by single motors, and the effects of the variation in torsion minimized.

The "torsional vibration" and its effects are thus minimized, the output is increased, and its quality improved. In addition, the cost of driving the shafting is saved; and where, as sometimes happens, one floor of a mill is required to run while others are stopped, or one portion of a floor is stopped, there is a considerable saving in the power that would otherwise have been expended in driving the shafting that is doing no useful work.

All that has been done by the electric motor can be done by gas engines, providing they use town gas, not recommending such an arrangement with producer gas, nor with blast furnace gas, for reasons given below. Gas engines are made of all sizes, from very small engines up to engines that will furnish power for the whole of the largest mill. There is no difficulty in running gas to every part of the mill; in fact, it is already done where the mill is lighted by gas. It would be wise to have a separate gas service for the engines; but that is a detail, and entails very little more labor than running the 2 or 3 cables required for furnishing current to electric motors.

It would be necessary to provide cooling arrangements for all the engines; but there should be no difficulty in carrying a system of pipes all over the mill and connecting the water jacket of each engine to it. It would be a question for the engineer to decide whether the same supply of water might not be employed for cooling the engines and for the fire extinction apparatus. Figs. 1 and 2 show a section of a mill, and a plan of a single floor, each floor having its own gas engine. The machines on each floor could also be further divided into

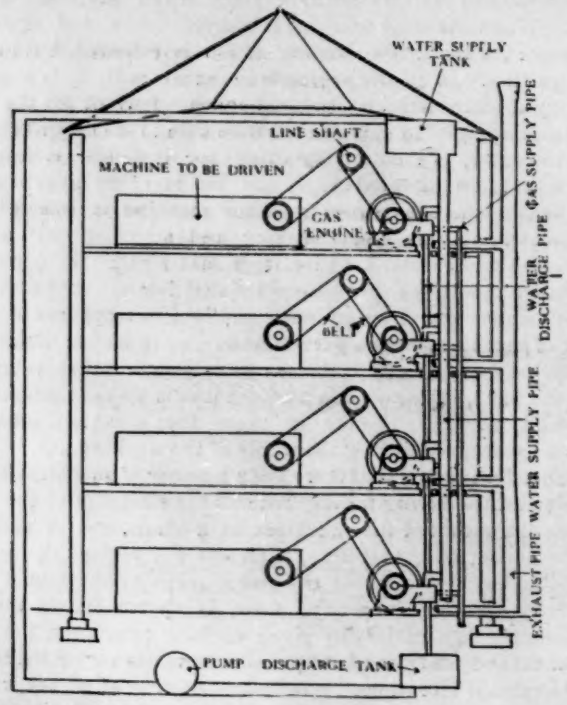

Fig. 1.—Suggested Arrangement of Gas Engines Driving Shafts on Four Floors of a Textile Mill.

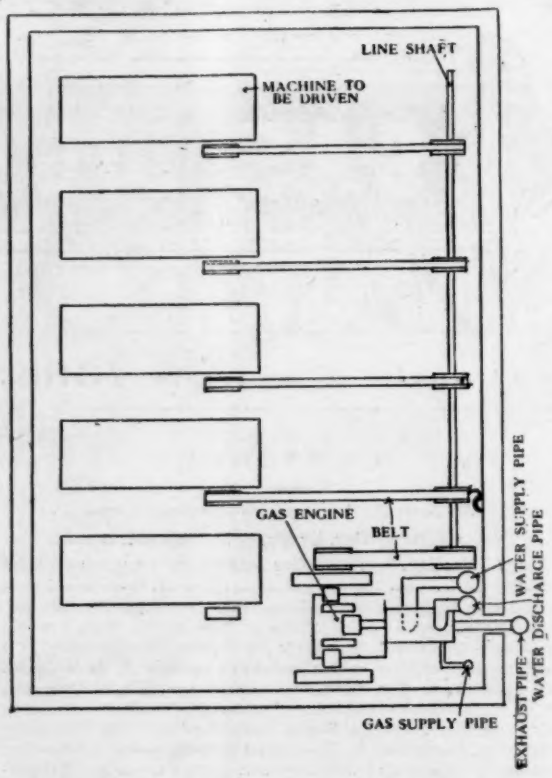

Fig. 2.—Gas Engine Driving a Number of Machines on One Floor of a Textile Mill.

sections, each driven by its own engine. Pipes from all the engines could be led to a common outlet pipe; and the exhaust gases could be taken to the atmosphere, or the hot gases could be employed to raise steam for the many purposes for which it is required in textile mills, or for driving the water circulating pumps. Fig. 3 shows the

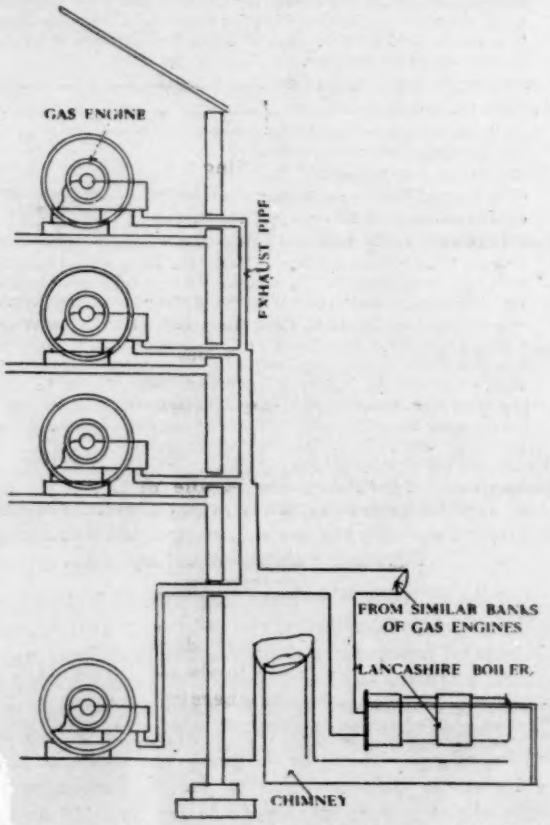

Fig. 3.—Arrangement for Using the Exhaust of a Number of Gas Engines to Raise Steam.

arrangement for raising steam in a Lancashire boiler by exhaust gases from the engines.

In winter textile mills have to be warmed in some way, and hot exhaust gases form a ready source of heat. There should be no difficulty in heating water to circulate through pipes or radiators in different parts of the mill.

At least 30 per cent. of the heat liberated in the cylinder of a gas

engine, passes out with the exhaust gases. Taking 10,000 B.T.U. per brake horse power per hour, this means that every horse power used in the mill would furnish 3,000 B.T.U. for heating purposes. As 1 B.T.U. will raise the temperature of 5½ cubic feet of air 10° F., for every horse power furnished by the gas engines, sufficient heat would be present in the exhaust gases to raise 16,500 cubic feet of air through 10° F. Allowing for losses in transmitting from the exhaust gases to the hot water, and from the hot water to the air, the power taken by any mill is sufficient to do a good deal of heating in cold weather, or to raise a considerable quantity of steam if preferred. It is estimated that the exhaust gases per brake horse power will in a properly designed tube raise 2½ lbs. of steam.

It will probably be said by steam engineers that the gas engine does not give uniform speed. The reply to this is, that a very large number of textile mills are now driven by gas engines. As a matter of fact, the gas engine, when properly constructed, is able to furnish quite as uniform a turning motion as the steam engine. There can be no better test than the requirements of electrical central stations using alternating current machines. In all generating stations where alternators are employed there are several units. Each unit consists of an engine and its alternator. One of the most important requirements of the station, as a whole, and of any engine that is designed to drive alternators, is that the turning moment given to each alternator shall be so absolutely uniform that the two or more machines shall run in absolute synchronism. It is a very serious matter to the repairs bill if the alternators run out of synchronism. It means that, if one machine is a little ahead, large synchronizing currents are delivered by it to the other machines; and, a little later, the other machines deliver large synchronizing currents, each in turn to the first machine and the remainder. The result is that the machines are very severely strained, and often are burnt up. There are large numbers of gas engines in all parts of the world, using town gas, coke oven gas, producer gas, and blast furnace gas, and the alternators driven by them work in perfect synchronism. Driving alternators in parallel is a far more severe test than that of driving the most sensitive textile machinery. And the author unhesitat ingly states that gas engines which will drive alternators may be safely trusted to drive textile machinery.

It may be objected that even running (the running of alternators in parallel by gas engines) applies only to large engines. Small gas engines are on the market that are capable of running small alternators in parallel just as the larger engines run the larger alternators.

It depends upon the conditions ruling in each individual mill, whether the power units shall be from 10 to 20 horse power or from 150 to 200 horse power. If the smaller units are employed, the ordinary four cycle engine will deal efficiently with the work, and will give a perfectly uniform turning moment. If the larger units are employed the later two-cycle gas engines give an increased uniformity of turning moment. In the Körting and the Oechelhauser two-cycle engines, the number of explosions per revolution is considerably multiplied. In the Körting there is an explosion at every stroke, practically the same as a steam engine; and it is claimed its operation is as uniform.

Many mill engineers still doubt the advisability of dividing up the power, many preferring driving the whole of the mill from one engine. No matter whether the whole of the mill is driven from one engine. or divided up, and whether it is divided into large units, from 150 to 200 horse power, or small units, from 10 to 20 horse power, gas engines should be able to deal with the problem quite as well as electricity, provided that town gas is used.

Producer gas has made great headway during the last 15 years, mainly because of the great economy in the cost of power.

There is serious objection to its use where town gas can be obtained. Where there is no town gas the producer gas plant comes as a boon to whoever requires power or heat. Where, however, there is a good supply of gas, it is a question whether it is wise for a millowner to use producer gas. Producer gas can be furnished cheaper than the majority of towns can supply their gas; but if the mill cannot start for two or three hours, say, on Monday morning, the difference between the cost of the two may easily be on the wrong side. He found cases where an engine had been running throughout the week, and very satisfactorily, up to closing time on Saturday. When an attempt was made to start on Monday morning, it was some considerable time before the uniform turning motion that a textile mill requires could be obtained. The engine might start and make a few revolutions; it might run for a short time and then stop. The reason appears thal the quality of the gas furnished on Monday morning was not the same as that furnished on Saturday at mid-day. It might and often does happen that the quality of the gas furnished at six o'clock in the morning is not the same as that furnished at five o'clock the evening before, if the mill has been standing during the night.

To the gas engineer the mill manager's requirement is only one of a very large number of others. The gas engineer must see to his gas, just as the mill manager must see to the production of his cotton. In a great many cases, the mill owner will prefer to run the risks of making his own gas, by the aid of a producer, to paying the higher price demanded by the gas company. The question then arises, what should the gas companies do? The author suggests that they should follow the lead of the electric companies. Electrical engineers were making strenuous efforts to capture a heating load, to sell current for heating, cooking, etc.; and, in order to enable them to do so, they were reducing the price of current. So gas engineers should reduce the price of gas for power purposes to meet the competition of producer gas. In the large textile manufacturing centers, the increased consumption of gas, if any considerable number of the mills could be driven in the manner suggested, would be worth having, and was worth the consideration of gas engineers.

The suggested gas engine drive would also have a great advantage over the electric drive in the absence of danger from shock. As time goes on, as more experience is gained with electricity, and, above all, as more care is taken in guarding against possibilities of shock, the danger from this will become less and less, but it should not be forgotten that the danger does exist; 500 volts, or thereabouts, is usually employed for small powers, and very much higher pressures for large powers. With proper insulation, properly maintained, the danger of shock should be small, but insulation deteriorates, and then innocent metallic bodies become "alive," and any one touching them may be killed; 500 volts continuous current kills, and 150 volts alternating will do so also.

[CONTINUED FROM PAGE 108.]

FIFTH ANNUAL MEETING, SOUTHERN GAS ASSOCIATION.

HELD IN SELWYN HOTEL, CHARLOTTE, N. C., APRIL, 1913.

SECOND DAY.—MORNING SESSION.

Following the progress report of Committee on Time and Place, Mr. H. B. Hoyt, Chairman of the Committee to report

RESOLUTION RESPECTING THE LATE MR. D. LOT SMITH,

submitted the following:

"*Whereas*, An All-wise Providence has removed from his earthly labors, D. Lot Smith, of Jacksonville, Fla.; be it

Resolved, That the Southern Gas Association, of which Mr. Smith was an active member, laments his loss to the gas industry, and expresses its sincere sympathy to his aged mother and bereaved relatives and friends. And, further

Resolved, That these resolutions be spread upon the records of the Association and sent to the family of the deceased.

H. B. HOYT,
M. A. BOWLIN, } Committee.
M. H. HOLTZ,

The meeting then adjourned until 2 o'clock.

SECOND DAY—AFTERNOON SESSION.

THE REPORT OF THE TREASURER,

having been read and accepted and referred to the Auditing Committee, the Secretary announced that the following

ADDITIONAL APPLICANTS FOR MEMBERSHIP

had been received – these were subsequently elected:

Arnold, J. T.	Picking, B. F.	Hale, C. P.
Doles, P. H.	Coler, Bird S.	Sullivan, W. H.

The President then introduced Mr. H. H. Carr, who read a paper[1] on the

1. Slightly abridged.- EDS.

OPERATION OF A MEDIUM-SIZE GAS PLANT FROM A MANAGER'S STANDPOINT.

The successful operation of a gas plant cuts a very important figure in the benefits derived by the public from utility corporations, although it takes hard and constant work to make some of our customers appreciate this fact. I will, therefore, begin with the gas plant well equipped and ready for operation. Let me say that I think a coal gas plant is better adapted to our Southern territory than the water gas plant. I will not undertake to discuss this subject in detail, or from a scientific point of view. I am not going to deal with cost figures in the preparation of this paper, but only to emphasize a few general facts which, in my opinion, are necessary in the proper operation of any size gas plant.

When a manager first takes charge of a gas plant one of his first duties should be to see that his plant is equipped with a sufficient and capable force. Oftentimes too little labor and a poor class, is more expensive than a small overdose of competent help. We, in the South, mainly employ negro stokers and housemen in our plants, but by exercising a little care and precaution we often find negroes above the average of their class in the way of intelligence, but even these have to be closely watched if you expect to get your holder cost down to a satisfactory figure. Putting gas into the holder at a reasonable figure is only a small part of your troubles, for the balance of your force, in order to have good results, must be well organized and have in mind at all times the necessity of performing team work, since having made the gas at a reasonable figure counts for nothing unless it can be satisfactorily sold and distributed. This feature of the operation calls for an entirely different class in your organization. You all know it is no easy thing to sell a man something which he thinks he does not want; therefore, it becomes necessary for your men assigned to the duty of selling gas to possess the qualifications of being able to persuade prospective customers that they do need and want gas and want it badly. Solicitors have a hard and unpleasant job and it is the manager's duty to keep them boosted and enthusiastic at all times. Therefore, there should never be any letup on the part of the solicitors in persuading prospective customers that they need gas, and need more gas, or on the part of the manager in keeping his solicitors filled with enthusiasm. I have oftentimes heard men say their fields of operation were close to the point of saturation. In my experience I have never yet seen a place where the point of saturatiou had been reached. Men have often become stale in working a certain territory, and either a change of territory, or putting new blood in the same field, will produce wonderful results. After a customer has been persuaded that he does need gas and has been connected up to the system, our work is far from complete, because it is one thing to get a customer, yet it requires tact and diligence to hold him, and a satisfied customer is one of the most valuable assets to any gas company. Therefore, all due diligence and care should be exercised in looking after complaints from customers. I have seen instances in which customers have complained of meters being fast, etc., and the manager, knowing full well that his meters were correct as proved by record tests, immediately set up his defense as to the correctness of his meters, while with a little diplomacy this complaining customer could have been satisfied with the assurance that his troubles would be looked into and if anything was found incorrect it would be immediately corrected. We must not go on the assumption that customers are as familiar with our apparatus as we are, or have the same confidence in same that we have, and to have and keep satisfied customers we have often to place ourselves in the complaining customer's place for the time being and govern our action toward him accordingly. Another very important thing is that of educational work. A few years ago all the gas companies in the country were simmering along in the old-fashioned rut, never dreaming of the possibilities confronting them; but competent men came into the field and realized the necessity of waking up. Therefrom dates improvement calling for the further usage of gas. Educational work was started, prospective customers were educated to the use of gas as a necessity and not as a luxury, and gas men in general have found the follow-up system a most profitable procedure. In my experience I find one of the most essential things to success is to have the forces so organized that every man connected with same feels his responsibility; feels that he is as important a factor in the company's operation as any other man, in proportion to the position which he occupies.

The operation of a medium-size gas plant, from a manager's standpoint, is a many-sided proposition, and the more resourceful he is the better is he qualified to cover all the phases which present themselves in his daily operation; for aside from seeing that the physical operation of his plant is satisfactory, the distributing system properly cared for and looked after, and that the commercial field is being thoroughly worked, the manager has to study financial results. And there is no better way to do this than by a careful and constant study of his financial report sheets.

I mentioned above that a satisfied customer was a valuable asset to a gas company; but I desire to state here that a satisfied manager soon results in the passing of dividends, because in this age of progressiveness there can be no such thing as a standstill. We have to either go forward or backward, and all of us realize how much easier the one is than the other. It requires energy to go up-hill while it only requires a lack of it to go down; therefore, I will reiterate that the success in the operation of a plant lies only to a small degree in the manufacturing end.

After gas has been made at a satisfactory figure, and a goodly number of customers connected at a fair cost per dollar revenue, there comes another very important feature, that of collections. It is very important that a company should keep up its collections, as we are doing no customer a favor to allow his bill to run to a large amount, since it often results either in the loss of the account or in making an enemy in forcing collections. Therefore, let me emphasize that the collection of our bills is by no means of minor impertance.

I have often seen companies showing large net earnings on their books, but very small balances.

Discussion.

Mr. Collins—A satisfied customer is the most valuable asset a gas company can have; and the point that digs into my cranium is Mr. Carr's thought that the satisfied manager curtails dividends. Too many gas managers are asleep at the switch. We have to keep awake or some day the stockholders will find us out.

Mr. Marshall—I went to a town the residents of which were "down" on the gas company. My manager, who sent me there, said he wouldn't last 6 months. We adopted the policy of being absolutely open, and giving all we could in the line of service. Inside of 2 years, we not only doubled both our gas and electric business, but we were considered friends of the community. It is essential to have the support of your employees. I had at one time an assistant who thought that he couldn't talk to his men, believing there was a broad social gulf between himself and the under employees, and I found he was disorganizing my entire force.

Mr. Hoyt—We make it a rule to keep a solicitor in a territory not more than one year. Solicitors should become familiar with their territory, but should not stay in it long enough to grow stale. If he gets discouraged he is of little value in getting new business in that territory. A new man can go to a consumer, or who had been uninterested, in a different way, with different arguments, and with a freshness of one who approached him for the first time. Then, too, we find a man will work a little harder if he thinks some one is to come along after him and pick up a lot of consumers.

Mr. Congdon—I will have to take issue with Mr. Carr when he says that success in the operation of a medium size gas plant lies only to a small degree in the manufacturing end. I am convinced that when he inherited his gas plant it was pretty well organized, and that the results were fairly good, otherwise he would not have made that statement. I back up my statement with personal experience. I took charge of the Frederick (Md.) coal gas plant about 1900. The arches had not been renewed for 7 years; the meter had no water in it; they had not used the scrubbers or condensers for 5 years; they had been using air-slacked lime as a purifying material, and the gas on the town was full of sulphureted hydrogen. They had a steam jet exhaust working overtime on the old retorts, with the result that the holder was filled with mixed gas and air. In fact, it was of such poor quality that I went up the alleys to keep from meeting the citizens on the main street. It is as important to have the manufacturing end well under control as it is to have any other part of the business well in hand.

Mr. Hoyt—I agree with Mr. Congdon. To obtain new consumers, and to retain old ones we must presuppose good gas, and good gas means gas high in heat units well up in candle power; clean, well purified gas, and unless the works sends out good gas the new businass men can neither obtain new nor retain old consumers. It is also necessary that the mains and services be of ample size, and both be clear of obstructions, having been properly laid.

Mr. Ellis—I think Mr. Carr has been misunderstood. I understand

him to mean that, while good gas was necessary, it wasn't the whole works.

Mr. Arnold—It occurs to me that service ought not to enter into the proposition of soliciting new business, for the reason that no one, whether producers of gas or any other commodity, had any right to go before the people without being able to deliver the goods. To begin with it should be taken as a matter of fact that we have the proper kind of a plant, and intelligent labor, and that all parts of the machinery are in the proper condition, before we solicit business. I was very much impressed with the idea of changing the personnel of solicitors. I know that after a man has been in service a certain length of time, it is natural for him to get into a rut; and if he is to be switched off into a new field, or his duties are changed, he wants to make a record that the man who succeeds him cannot beat, and he also wants to excel the man who preceded him. Our Company is a subsidiary of the Southern Power Company. We operate in a number of towns, and have under consideration, the organization of an expert soliciting force that will operate in a town for 2 or 3 months, and then move on to another town, letting others take their places. Our business must grow and expenses increase all the time. We have to increase wages and other expenses come along; the cost of everything is climbing, and we have got to get the volume of business.

Mr. Carr—I realize that when you undertake to sell something, you must have the goods to deliver. It may seem that I underestimated the value of having the gas plant in a proper condition to make good, cheap gas; but such was not my intention. The gentleman is wrong in thinking that, when I took over the gas plant I got a good one. I didn't, I am sorry to say; but I do reiterate that we often lose sight of the business side, by looking too much at the mechanical and engineering side. I have seen many managers who were greatly interested in the mechanical operation of their plant, while the business-getting end of their organization was standing idle. In other words, I believe the successful operation of any plant can be thus summed up: The organization doing good team work is bound to make a success, because all have got to work; the manufacturing end, the commercial end, and all else. That is what means success; and it all lies with the manager. It is his province to see that that is done.

On motion, a vote of thanks was given Mr. Carr for his paper.

The President introduced Mr. S. R. Church, who read a paper entitled

GAS PLANT RESIDUALS: TAR AND ITS BY-PRODUCTS.

[For the text of the Church paper, see JOURNAL, *ante*, May 26, p. 337.]

Discussion.

Mr. Ferrier, Acting Chairman—This very instructive paper is now open for discussion.

Mr. Congdon—I believe this is the first paper, dealing extensively with this subject, that has ever been presented to a gas association in this country. Those of us who have ventured into the business of distilling coal gas tar, will find it very instructive; and those who have not yet taken this rather bold step, will probably be discouraged from going into it. Seven years ago we had on hand something like 1,500,000 gallons of coal tar, which we would gladly have sold to any manufacturer for fair price; but we couldn't get such price, and were forced to make the experiment of distilling tar on our own account. Our principal aim was to make a creosote oil to meet the required standard specifications, and to furnish a binder for the building of streets and roads in our immediate vicinity. I appreciate what Mr. Church says concerning the injury done by people who don't understand the business. If you sell your tar to the local authorities, as a dust layer, and later see it fail miserably, you will have given tar a black eye; and if some competing concern comes into town to sell to the local authorities, it might be difficult for them to do so. We took that unfortunate step ourselves and suffered for it. Recognizing that we are not experts in this business, we have recently employed a Mr. Hubbard to help us. I had him visit our plant and the roads where our binder was used. Samples of the road surface, good and bad, were dug up and shipped to Washington, to the Bureau of Industrial Research, for analysis and opinion; and Mr. Hubbard is to supply us with specifications adaptable to our particular locality, and it is our purpose to endeavor to proceed in an intelligent and scientific manner. Samples of material which we offer for sale will be inspected by the "Bureau of Industrial Research." If we don't furnish a good product, we can't expect to sell it. We have, on the whole, been successful. We are making quite a large quantity of coal tar and while we had 1,500,000 gallons in our tanks, we have reduced that stock to about 200,000 gallons, and have been able to get 150 per cent. more for our tar than any manufacturer was willing to give us.

Mr. White—Montgomery County, Ala., has recently constructed about 300 miles of gravel and clay roads, which roads are beginning to wear out. How far could tar be used on roads of that kind, and what life can we get with tar? Further, through co-operation, we hope to get a better price for our tar from the tar manufacturing company. Let Mr. Congdon, or our Denver Company, take part in making tar products; but while the two companies are doing something, yet 100 other companies have tar stored in their holder tanks. I am using holder tanks as tar tanks, and am getting ready to burn it under the boilers because we can't get a price.

Mr. Harris—Our Company is expending from $50,000 to $100,000 per annum in publicity work alone, besides which we have men on the road visiting public officials advocating the use of tar for road work, as a dust layer, and as a road builder. In addition we are making efforts to use our pitch in concrete, gravel and dirt roads. We have a considerable quantity of tar at Corey, Ala., and are buying tar throughout the Southern States where we can buy it at a profitable figure.

Mr. DeFrese—The gentleman hit the kernel when he spoke about the price. At Chattanooga, we stored tar in barrels, our wells were full, and we commenced to use the holder pits, because we couldn't make satisfactory arrangements with the companies that buy crude tar. They say it must contain not more than 2 per cent. of moisture. I notice, Mr. Church says, crude coal tar runs from 7 per cent. to 30 per cent. If we attempt to meet their specifications, our product would be subject to a discount equal to the percentage of water, plus the freight. A more thorough understanding should be had between the gas companies and the dealers as to what constitutes good, clean coal tar. From the experiments we made it is not practicable for a small gas company to distill tar, above what we call "refined tar," or a tar that is heated to a temperature of 500° F. Most of our tar is high in carbon, which has a bad effect on the still. We tried to produce shingle stains and failed. The stain we made with aniline colors faded, and we are glad we didn't go very far with it. On the whole our distilling apparatus at Chattanooga was a failure, and I wouldn't want to go into it again. About three years ago we got permission from the city to treat one block of dirt road. Part of the road so treated turned out very good, part of it turned out very bad. It rained while we were treating that part, but the part put down when it did not rain was a success.

Mr. Ellis—It might be interesting to hear something of the details of our tar distilling plant, because its the smallest one in the world. We commenced to experiment and feel our way. We took the waste heat from the bottom flues of the recuperators and passed it around the tar still. We put the worm from that still, through a primary still filled with tar, using the heat from the hot distillates and from the still to heat and dehydrate the tar in the first still. When the benzols and light oils commenced to come off, we ran them into the hydraulic main, with the expectation that the hot gases would take up the benzols and enrich the gas. We collected the products of distillation and found we had only creosote oil, naphthaline and pitch, and didn't recover much benzol. But we have made our tar net us approximately 10 cents per gallon, exclusive of the selling and distillation expenses.

Mr. Hoyt—We are building at Jacksonville, Fla., an auxiliary coal gas plant of inclined benches, and we expect to make 25 or 30 car loads of coal tar per year. We would prefer to sell our coal tar to Mr. Congdon, to whom we have been selling our water gas tar, or to some other reputable firm. We will have an excellent local market for ammonia, because Florida is a large producer of crude phosphate. Considering the importance of this matter generally, I move a

PERMANENT COMMITTEE ON RESIDUALS

be appointed by the Chair. In offering this resolution, I have no idea that that committee should attempt to steal any processes or secrets that have been worked out by pioneers in this branch of our industry, nor attempt to pry into anybody else's affairs.

The motion was seconded, put and declared adopted.

Mr. Rieha—I have been following the distillation of tar for 16 years in this country and abroad. Running a tar still by the waste heats from the last flue in the recuperator is evidently new in this country, but it has been done successfully in Europe. I do not think the smaller gas plants will be able to successfully handle the tar situation. If there could be a series of gas plants equipped, for instance,

one in the South, one in the Middle West, and one in New England, under experienced management, it would be a good idea to let the smaller gas plants send their tar and ammonia liquor to these plants to be worked up and marketed. There is a better chance for the small gas plant with its ammonia than with tar, because the fertilizer industry is growing tremendously, and it doesn't require as much money to work up your liquor as to work up your tar.

Mr. Ferrier, Acting Chairman—Mr. Church, is it a fact that most of the metallurgical coke in Europe is made in by-product recovery ovens, and is not the price of tar in Europe steadily rising?

Mr. Church—The coke is so made. The high price of tar (if it is high) is due to the fact that the coal briquetting industry is very prosperous, and the tremendous increase in wood preservation which utilizes coal tar creosote. When I said a reasonable percentage of water in tar would not exceed 7 or 8, I meant the gas company ought not to expect the consumer to receive tar carrying a higher percentage of water than that. I don't say whether the buyer should pay for that water as tar or not, but it is unreasonable to expect the consumer to accept a larger excess of water, because, even if he doesn't have to pay for it, he has to pay to get it out of the tar.

A rising vote of thanks was given Mr. Church for his paper.

The President resumed the Chair, and Mr. Pierce read the

REPORT OF COMMITTEE TO CONSIDER WAYS AND MEANS OF GIVING ARCHITECTS AND BUILDERS INFORMATION AS TO THE USES OF GAS.

Discussion.

[Of course, the discussion would not be of value in face of lack of matter of the report, so the discussion is not reprinted. We regret this, in that both have valuable matter.—EDS.]

THIRD DAY—MORNING SESSION.

Mr. Ferrier in the Chair. Mr. Hoyt presented the

REPORT OF THE AUDITING COMMITTEE,

which was to the effect that an examination of the books and accounts of the Secretary-Treasurer proved them true and accurate records and transcripts.

Next came the

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS,

which was read, received, approved and filed.

REPORT OF COMMITTEE ON TIME AND PLACE.

Mr. Hopt, from Committee on Time and Place, said they had given the matter careful consideration. Having heard the views of many members, the Committee recommended that the 1914 meeting be held next April in Mobile. [Applause.] The recommendation having been accepted and endorsed, the report of Committee on Memorial to the late Mr. S. E. Linton was read and accepted.

THE REPORT OF NOMINATING COMMITTEE,

recommending the election of these officers for the ensuing year, was then considered—the findings were submitted by Mr. Congdon:

For President.—James Ferrier.
" *First Vice President.*—MacD. Dexter.
" *Secretary and Treasurer.*—E. D. Brewer.

ELECTION OF OFFICERS.

On motion, Mr. Bowlin was instructed to cast the ballot of the Association in favor of the election to office of the gentlemen named. This Mr. Bowlin did, and so reported.

SOME RESPONSES.

Mr. Ferrier, in acknowledging his promotion, said: Gentlemen, I certainly sincerely thank you for the honor conferred in making me President. I presume that you are aware that I am one of the "parents" of the Association, and I assure you of the pride I feel to behold such a sturdy youngster as this Southern Gas Association has grown to be. When it first saw the light I hoped we would soon get to the number of 150, and I thought that would be doing well. We now have, including associate members, 232, so that we can be reasonably proud of our record. When the Association was formed I remarked that certain people in some other parts of the country didn't think we could get a good association in the Southern States; but I said let them come and see. Well; you have come and you have seen. We have had papers which I don't believe could be surpassed in any similar Association, and our discussions show the interest that the members take in these subjects. I only hope I can carry on during the coming year just as good work as that accomplished by my predecessors in the Chair, and I count upon your cooperation to keep up the reputation of the Southern Gas Association. Gentlemen, I thank you all.

MR. DEXTER'S ACKNOWLEDGMENT.

The President—We will hear from Mr. Dexter.

Mr. Dexter—I do not know I have anything to say beyond to state that I feel very highly honored. I am in the minority in the respect that I am one of the comparatively few men in the South in the gas business not Southern born and raised. I have been in the gas business for 18 years, resident of a small county and at too great a distance to attend many of our big meetings. However, I have always been glad that we formed this Association. I attended its first meeting, or that of organization, and have always felt a hearty interest in it, because I am a Southerner and because I am in the gas business. I am delighted to see that it grows in importance and in representation. In humble way I will do in the future all that lies in my power to promote its success. [Applause.]

On motion of Mr. White (Mr. Ferrier in the Chair) Mr. Whittaker was asked to revise the questions and answers that had been forwarded to the Question-Box, with a view to having the same incorporated in the "Proceedings." Mr. Pierce then completed his previous remarks respecting "Systems of Remote Control," etc. On motion, a vote of thanks was passed to Mr. Pierce.

A SAD HAPPENING.

Mr. White—Gentlemen, we have certainly all enjoyed the hospitality of the Southern Power Company as directly expressed through its local representatives. Yesterday Mr. Martin received a telegram from New York that Mr. R. B. Arrington, the Secretary and Treasurer of the Southern Power Company, only 38 years old, able and brilliant (private secretary to Mr. Duke for a number of years) is dead. Mr. Martin, to show how sudden the ending came, said that in this morning's mail he received a regular business letter over the signature of Mr. Arrington; and a few hours after it had been mailed, its writer had gone beyond. I think it fitting we should express, through the Southern Power Company to the family of Mr. Arrington, our sympathy in their sudden bereavement. The Chair will entertain a motion to that effect. We can now entaintain the motion and pass the order. Later on formal resolutions of suitable nature can be adopted.

On motion of Mr. Hoyt the outgoing and incoming Presidents were constituted a committee to prepare a suitable letter to the family of Mr. Arrington. [Adopted.]

THE LAST CHANCE.

Mr. Collins—Mr. President, this may be the last chance in formal way at this convention to express, on behalf of the Charlotte Gas and Electric Company, its pleasure in having had you with us. We regret we were not able to give you a better time; but the barbecue starts in a few minutes. Immediately at the close of this meeting, cars will be in front of the building, to leave at 11:45 for a ride over the city, stopping at Lakewood Park, where Mr. W. S. Orr, former Chief of the Fire Department, will serve an old-fashioned barbecue to the best of his ability. The General Fire Extinguisher Company, which has a storeroom in North Charlotte, extends an invitation to the Association's members to visit its plant, going through the works, machine shops, etc. Any desiring to go may reach there in a few minutes by taking a North Charlotte car. The conductor will let you off right in front of the plant. This concern supplies a lot of pipe and fittings for the Carolinas; however, I believe the Atlanta branch takes care of Mr. Congdon. The Charlotte Pipe and Foundry Company, having a pipe plant just west of the city, asks any who desire to look at it to 'phone to the office and an automobile will be sent around to carry the visitors. The Company's staples are soil pipe and curb boxes. At present no cast iron pipe is being made. Again, the cars will be in front of this building at 11:45, for a trolley ride over the city. I will particularly mention Myer's Park, a development in the eastern part of the city. We will ride through that, and, if we have time, through some other parts of Charlotte. We want to give you the best first; then we will see the poorer sections. For the benefit of those contemplating taking trains early in the afternoon, trolley cars will leave the barbecue every 20 minutes. It's about 20 minutes' ride from the barbecue back to the Square. In that way you can fix the time for catching any train you wish. Those who miss the cars here at 11:45 will perhaps be able to get out on a later trolley.

1. The text of this Report was not furnished us.—EDS.

On motion of Mr. White a vote of thanks was extended to the Charlotte Gas and Electric Company, to the local newspapers, to the Manufacturers' Club, and to the industrial trade papers for the efforts expended in making the meeting a success.

On motion of Mr. White, final adjournment was ordered.

South African Gas Coals.

Mr. J. W. Brown has made some investigations and examinations of African coals for the South African Lighting Company, to determine their value for gas making. He says: Owing to the high price of imported English coal—costing at Port Elizabeth about $9.50 per ton, and at Grahamstown more than $14, and the fact that coal is being found all over South Africa—my Directors wished me to give special attention to testing these coals, and if possible find one which it would be advantageous to use.

I made a careful test of the English coal we were using (Aldwarke Main washed nuts) for the purpose of finding what could be obtained per ton, for ultimate comparison against colonial coal, and found the yield to be just over 12,400 cubic feet of 16 candle power gas, with 10 gallons of tar, and slightly over 800 pounds of coke available for sale. [This, after allowing coke for furnaces, and that used for the boiler.] As coke realizes $11 per ton of 2,000 pounds, and tar 25 cents per gallon, it will be seen that these items are very important. Ammonia I did not take into consideration, as beyond what we made and sold as "S.A.L.A. Cloudy Ammonia," it is practically unsaleable. In looking at these results, it must be remembered that the retorts are singles, not back to back, and only semi regenerators at Port Elizabeth, with direct-fired at Grahamstown, and that only native labor is employed.

From various colliery agents I found that anything from slaty shale to good coal is to be obtained; and I chose for first testing, from sixty analyses, the following three Natal coals.

I place Burnside first on the list, as I had had an opportunity of seeing this coal, and it struck me from its appearance that it should be a fair gas coal. This surmise subsequent investigation proved to be correct.

The chemical analyses of these three coals are as follows:

	Burnside. Per Cent.	Bellengeisch. Per Cent.	Hlobane. Per Cent.
Moisture	1.06	1.5	0.60
Volatile hydrocarbons	21.63	24.8	28.40
Fixed carbon	68.30	61.7	62.49
Ash	10.50	10.8	7.84
Sulphur	1.17	1.6	1.01

The report on these coals was as follows:

Burnside.—This coal is dull black, with thick streaks of bright resinoid bituminous coal. Fracture is irregular. On the fire, it burns bright and very even, and gives off a very white gas. The coke is excellent, good grey color and fairly hard; burns with great heat, and leaves little clinker, burning to a whitish grey ash.

Ballengeisch.—This is a hard, dirty looking dull black coal, with fair amount of bright bituminous streaks, irregular in fracture, with traces of calcic carbonate. Coke, etc., similar to Burnside.

Hlobane.—This coal is a very heavy, dull black, with very little bright streaks through it. Irregular in fracture. Gives off a very even quantity of gas, of fair quality, through the greater part of the 8-hour charge. The coke is very hard and heavy, from grey to black in color, slow in burning, but with good heat, certainly the best coke of all the colonial coals I have tested. Leaves little clinker, and burns to a grey ash.

Practical Results.

	Burnside.	Ballengeisch.	Hlobane.
Gas per ton, cubic feet	10,500	8,934	9,401
Candle power	16	15	15
Coke for sale, pounds, per ton.	900	950	1,050
Quality	Excellent	Good	Good hard
Combustible in coke, per cent.	86	84	86
Ash, per cent	14	16	14
Tar, gallons	5½	9	8

The coals were the r.o.m., and not washed or picked at all. When the washing plants now in course of erection are completed, no doubt results will improve.

I do not think (after the many tests I have made) that there is yet any good gas-making coal to be obtained in bulk from the Transvaal. I am aware that the Municipality of Johannesburg purchase a quantity of coal from the Coronation Colliery, Witbank; but this is specially picked for them, and at fairly high prices. The coal gives good results; but the collieries are not too keen upon supplying much, as it reduces the quality of the remainder. After comparing prices and the results of this hand-picked coal, against the results from Burnside, I would not recommend it.

From the many coals in the Transvaal district, the following are the best results I could obtain:

Practical Results.

	Witbank.	Coronation.
Gas per ton, cubic feet	10,030	7,853
Candle power	15	15
Coke for sale	Not good enough	Not good enough
Combustible in coke, per cent.	83	80
Ash, per cent	17	20
Tar, gallons	8½	8½

I feel certain that the best coals for gas-making will be found in the Natal group; and of these "Burnside," belonging to the Dundee Coal Company, is undoubtedly the best. As the result of my investigations and researches, the Directors of the South African Lighting Association have made contracts for this coal (the first ever made in South Africa for r.o.m. coal for gas making), which will undoubtedly prove of great financial advantage to them.

Among other coals, I tested St. Georges, Cambrian and Newcastle of the Natal group, and Breighton and Vaalbank of the Transvaal. Many were tried; but the results obtained are not worth recording here.

English Gas Fittings and Appliances on the Continent.

A recent issue of the *Gas World*, in the course of an article contributed to its columns respecting the subject in hand, declares that the things which contribute to make travelling on the Continent pleasant to the Britisher may be counted the frequency with which, in the course of his journeyings, his eyes are attracted by tangible reminders, in the shape of articles and commodities imported from his native land, of the marvellous extent of English commerce. And our gas lighting and heating appliance makers may well feel proud that their own belongs to those of our industries whose existence and wonderful development are most frequently recalled to his mind in the manner mentioned. We have herein a striking proof not only of its enterprise, but also of the high esteem in which its wares are held by the peoples of the different countries on the other side of the Channel.

This esteem is so remarkable, indeed, that—writing as one who has repeatedly visited all parts of Europe—I can unhesitatingly affirm that to find in any a first-class retailer of the description of articles concerned who does not regularly stock many goods made in the United Kingdom would be well-nigh impossible. Nor would it be correct to attribute this to the fact that it is not very long since the gas supply of many Continental cities was in the hands of English companies—as, for example, that of Berlin, the inhabitants of which are even to-day largely dependent for that convenience upon a concern of English foundation, and which still has an English name—*i. e.*, the Imperial Continental Gas Association.

That circumstance is, it is true, very flattering to our patriotism; but the vast demand for British-made gas fittings throughout the Continent is to be referred exclusively to their unsurpassable serviceness, and, so far as those of an ornamental kind come into question, to the combination the majority exhibit of practicality and elegance.

If, however, the exports to the European mainland of the various classes of articles dealt with are great, it cannot be denied that they might be greater; and my purpose in this article is to give a few hints as to how firms who would like to share in the profitable work of augmenting them can best attain their object.

Keep Pushing.—The principal thing for these to bear in mind is, of course, that there is little chance of doing much business beyond the Straits of Dover without the aid of energetic agents or travellers of one's own; and I may say right away that among the readiest means of obtaining the first is to advertise in suitable foreign papers, and that a list of such may be procured from Rudolf Mosse, of Berlin, Paris, Brussels, Geneva and Rome, the leading Continental advertising contractor, as well as from most firms of the same order in London.

(*Continued on page* 122.)

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THOMAS J. CUNNINGHAM, SANFORD K. CAMPBELL, } Editors.

NEW YORK, MONDAY, AUGUST 25, 1913.

[Official Notice.]

Annual Meeting, Michigan Gas Association.

Michigan Gas Association,
Office of Secretary,
Grand Rapids, August 12, 1913.

To the Members, Michigan Gas Association: Did you ever hear Mr. Herbert N. Casson talk to the gas men? Did you ever hear him talk to anyone? Well; there is a great treat in store for you at the next meeting of our Association, for he will then talk to us on the subject of "How to Get Gas Across." Mr. Casson is great. He makes you laugh, cry, "sit up and take notice," and applaud his forcible, entertaining arguments, with his original ideas of modern business building. Then, too, we will have some mighty good papers, as witness:

"Practical Effects of the Workmen's Compensation Law," by Mr. Albert G. Schroeder.
"Gas Advertising," by Mr. Alonzo P. Ewing.
"The Increased Cost of Gas Making Materials," by Mr. B. O. Tippy.
"Educating the Public," by Mr. Ernest F. Lloyd.

Among other things our entertainment programme will include an afternoon boat trip and supper at Bois Blanc. On the boat we will have another good talk by a very prominent newspaper man, who will tell us some things that we all ought to know. A meeting in Detroit always brings out a big crowd, and this promises to be one of the big meetings.

The city, Detroit; the place, Hotel Pontchartrain; the time, September 17, 18 and 19th. Make your hotel reservations now.
Yours very truly, Glenn R. Chamberlain, Secy. and Treas.

BRIEFLY TOLD.

The Annual Meeting, Canadian Gas Association.—For the following information respecting the current annual meeting of the Canadian Gas Association, we are indebted to the attention of that always-clever gentleman, Mr. John Keillor (Hamilton, Canada), who is the Association's capable and alert Secretary-Treasurer. The meeting will be held in the Engineers' Club, King street, West Toronto, Thursday and Friday, 28th and 29th insts. The registration of members will start at 9 A.M., Thursday morning, and the Chair will be taken by the President (Mr. Arthur Hewitt, Manager of the Consumers' Gas Company, Toronto), at 10 A.M. The forenoons of Thursday and Friday will be absorbed by the transacting of the regular order of business, the reading and the discussing of papers. It is proposed to pay a visit to the Gas Show the afternoon of Thursday, which show will be carried on in connection with the Canadian National Exhibition grounds. A special gas appliance exposition will also be held in the Educational Building, Canadian Exhibition grounds, after the manner of that so well-handled last year, during the ever-memorable joint meeting of the Canadian-Michigan Associations. Mr. Hewitt and the Directors of the Consumers' Gas Company have, in accord with their usual splendid hospitality, offered to entertain the members and their guests. And, although the precise form of entertainment proposed has not been definitely determined, it is thought the party will be entertained in the Exhibition grounds the evening of Thursday, and that the following afternoon a visit will be made to beautiful Toronto Island, where luncheon will be served in the handsome house of the Royal Canadian Yacht Club. During the evening of Friday a banquet with other suitable entertainment feature will be provided.

The Richmond Meeting, American Gas Institute.—While all of the details have not been determined, enough has been decided to announce that the Eighth Annual Meeting of the American Gas Institute will repay a very complete attendance. We are assured the work of the Committee on Arrangements is well underway, and that, without neglecting the important business, which will come before the meeting, there will be time for sight-seeing in a city that is peculiarly interesting. Since the meetings at Savannah, Ga. (1890), and at Old Point Comfort (1897), no session has been held south of Mason-and-Dixon's line, and the Institute will be holding its first meeting below that line. The city of Richmond intends to so thoroughly impress the members of the Institute with the quantity and quality of Southern hospitality, that in the future the Institute will come South more often. The city is exceedingly rich in historical lore, and possesses more evidences of the important part it has played in the opening of the country, with active participation in its following history, than almost any other city in the country; which, coupled with the evident desire of its press and public to take an unusual interest in our gathering, insures a degree of cordiality entirely out of the ordinary. This will be conspicuously apparent to the ladies who attend. The meeting itself will be of great interest and profit. Besides a lecture, a joint session of the Illuminating Engineering Society and the Institute, there will be more than the usual number of papers on important subjects.

The Ohio Commission Overrules a City Council.—The Public Service Commission of Ohio struck a decisive blow at the practice of municipal councils in arbitrarily fixing rates for public service, when it held invalid the gas rate reduction ordinance passed by the Toledo City Council. The decision is as follows: The case came in to be heard upon the complaint and appeal of the Toledo Railways and Light Company, from an ordinance of the municipality regulating the price which gas companies may charge for artificial gas furnished to the citizens of the city of Toledo, O. Being fully advised in the premises, and having ascertained and determined the value of all the property of said Company, actually used and useful for the convenience of the public, * * * and to the necessity of making reservations from income for surplus, depreciation and contingencies, and such other matters as deemed proper, according to the facts in this case, the Commission finds that the prices for artificial gas used for illuminating purposes, so fixed by said ordinance, are unjust and unreasonable, and insufficient to yield a reasonable compensation for the service rendered and to be rendered by said Company. And the Commission, coming now to fix and determine the just and reasonable price to be charged, * * * finds that the rates, prices and charges in effect in said city immediately prior to the taking effect of the ordinance complained of and appealed from by said Company, are just and reasonable. The Commission further finds that the property of the Company, used and useful for the convenience of the public, is of the value of $963,467.50; and that it has additional property not now used and useful for the convenience of the public, by reason of the decrease in the volume of said Company's business, of the value of $157,392, making the total value of $1,120,859.50. The Commission further finds that the gross revenue from the sale of artificial gas for the calendar year 1912 was $209,390.23, and the net revenue, $28,446.51. It further finds that the net revenue that would have accrued at the prices provided for in the ordinance herein complained of and appealed from, would have been $15,248.89; and that the rate of income accruing to said Company, upon the value of its property, actually used and useful, for the convenience of the public, for said year was 2.952 per cent. The Commission further finds that the rate of revenue that would have accrued to said Company at the price provided for in the ordinance complained of would have been 1.883 per cent. The Commission finds that the provisio n of said ordinance herein complained of, fixing the minimum charge to consumers of artificial gas at 25 cents per month, is just and reasonable, and is, therefore, ratified and confirmed by the Commission. It is, therefore,

Ordered, That rates, prices and charges not in excess of the rates, prices and charges for artificial gas for illuminating purposes, sold to consumers in the city of Toledo, O., fixed by the ordinance of said city under date of August 19th, 1901, which rates, prices and charges were in force and effect immediately prior to the taking effect of the ordinance of said city herein complained of and appealed from by said Company, and which rates, prices and charges the Commission has found to be just and reasonable, be substituted for the rates, prices and charges so fixed by ordinance of said municipality, herein complained of and appealed from by said Company. It is further

Ordered, That said ordinance herein complained of and appealed

from, and each and every part thereof, except that part which fixes the price and rate to be charged for artificial gas for illuminating purposes, which part the Commission has found to be unjust and unreasonable, be, and the same are, hereby ratified and confirmed by the Commission.

And the Commission, having made inquiry and investigation with respect to the ability of said Company to furnish its product during the period fixed by said ordinance, and having found that said Company is, and will be, able to furnish its product during such period, it is, therefore, further

Ordered, That rates, prices and charges not to exceed the rates, prices and charges for artificial gas furnished to consumers in the city of Toledo, herein found by the Commission to be just and reasonable, be and remain in force and effect for the period of 5 years from the effective date of the ordinance of said municipality herein complained of and appealed from by said Company, and said Company be, and it is hereby notified and directed to furnish its said product to consumers thereof in the city of Toledo during said period.

AN ENGLISH PLAN FOR HELPING TO TRAIN GAS FITTERS.—The London *Times* notes that Mr. D. H. Helps, Manager of the Reading (England) Gas Company, gives this description of their splendid efforts to educate young men as fitters and fitters' helpers: "We then arranged with the authorities of Reading University College for the inclusion among their evening classes of one in gas fitting and gas supply. Our own District Superintendent is the tutor and lecturer. The scheme has, I think, proved a great success. All students have to pay a fee of $1.25, half of which our Company pays under any circumstances, and the other half is refunded to each student who attends 75 per cent. of the lectures. Mr. W. Hole, of Leeds, a well known authority on gas distribution, holds an examinatton at the end of each session, and certificates are awarded by the college authorities. The Company also gives a first and second prize of $15 and $7.50, respectively. Some of the students also sit for the examination conducted by the City and Guilds of London Institute in Gas Supply, and two years ago one of them obtained the bronze medal offered by the Institute. Grants are made by the Board of Education to the Reading University College in connection with these evening classes. Originally the College authorities insisted that students attending the classes in gas fitting and gas supply should also attend classes in building construction, and properties of matter, during the first year's course, and in machine construction during the second year. We found, however, that this really interfered with the success of the scheme, for men and youths working as fitters and fitters' helpers throughout the day could hardly be expected to attend two or three evening classes during the week; and, again, it was found that all of them did not take sufficient interest in the classes in building construction, etc. Of course, if a student wishes, he can attend these classes, but it is not now compulsory for him to do so. I would add that the instruction in gas fitting and gas supply given at Reading University College is not confined to workmen or others in my Company's employ—anyone may attend the classes. We also take a few apprentices, who pay us a premium. These lads, in addition to attending the classes at the College, are placed with the best of our fitters and given other advantages beyond those granted to the ordinary fitter's helper.

THE PRELIMINARIES, PITTSBURGH MEETING, ILLUMINATING ENGINEERING SOCIETY.—Mr. M. C. Turpin, Acting Chairman, Advertising and Publicity Committee, Illuminating Engineering Society, informs us that at a meeting of the General Convention Committee, held in the rooms of the Society, the Engineering Building, New York City, Thursday, the 14th inst., with Chairman C. A. Littlefield, presiding, the numbers virtually completed all arrangements for the Seventh Annual Convention, in Hotel Schenley, Pittsburgh, September 22d to 26th. The Attendance and Transportation Committee reported that a large number of members, and others interested in illumination, had signified their intention of attending the convention, and it was confidently believed that the attendance will far surpass that at all previous conventions. For the accommodation of these the Committee has arranged for a special train, to leave New York over the Pennsylvania Railroad, Sunday Sept. 21st., at 10 A.M. The delegates from Boston will also travel by this train. It will pick up a delegation in Philadelphia, at 11:57 A.M., and, reaching Harrisburg at 2:35 P.M., will there take on the delegates from Baltimore and Washington, reaching Pittsburgh at 8:50 P.M. A special train for the Western delegates will leave Chicago over the Lake Shore and Michigan Southern Railway, from the La Salle street station, at 8:20 P.M., Sunday, Sept. 21st., arriving at Pittsburgh 7:40 A.M., Monday. Other special accommodations will be provided if needed. These trains will be met at points outside of Pittsburgh by members of the local committee fully qualified to look after the needs of the travelers. The local committee has arranged for a full programme of entertainment features, including baseball, golf, tennis, theater and bridge parties; trips to some of Pittsburgh's big industrial plants, automobile rides, all ending in a banquet, to be served Wednesday evening, September 24th. A glance at the programme (it lists 24 live subjects) will convince anyone interested in "Illumination" of the good matter offered by the Papers' Committee, and several of the subjects listed will undoubtedly provoke a helpful quota of discussion. The meeting Tuesday evening will be held in Soldiers' Memorial Hall, at which time a description and demonstration of the wonderful lighting effects operative therein will be given. The Publicity Committee is preparing an attractive souvenir book, containing a programme of the convention, a copy of which will be mailed to each member (as well, any others desiring it) about a week before the convention.

CURRENT MENTION.—

LAST month the North British Association of Gas Managers placed a memorial tablet (a bust of fair proportions), suitably inscribed, at an appropriate place on the front of the dwelling in Lugar, Scotland, in which the late William Murdock was born. The ceremony was attended by the officials of the various English Gas Associations, and many of the older gas men.

THE Franklin Institute, of Philadelphia, has awarded to Professor W. A. Bone, F.R.S., the Howard N. Potts gold medal for meritorious, distinguished researches and accomplishments, in the fields of science and the ways of mechanical arts, as attesting to recognition of his studies and achievements in "Surface Combustion." The dictum conferring the award describes the outcome of his researches as "An original and meritorious development in scientific technology." The particular lecture on the topic of "Surface Combustion," was delivered at the invitation of the Franklin Institute, October 30, 1911. A fortnight prior to that date he addressed the American Gas Institute on the same subject.

MR. JOHN F. O'DONNELL, foreman of the Adams street meter shops of the Laclede Gas Light Company, St. Louis, Mo., has resigned that position, to take effect about October 1st.

ADVICES from Pasadena, Cal., are to the effect that definite plans will be speedily formulated in respect of a a fitting memorial to the late Prof. T. S. C. Lowe, which memorial is to comprise a life-size bronze statue, to rest on a granite pedestal, to be placed in Library Park, South Pasadena, in which beautiful settlement the Professor lived for many years. Our informant notes "That the co-operation of commercial organizations, improvement bodies, clubs and civic associations will be sought, in order that the memorial may be a Southland tribute to the greatest scientist of Southern California. Assistance in the project is confidently counted on from every section of the United States; for Professor Lowe was a national figure, responsible for inventions and enterprises which have contributed greatly to the advantage of the American people."

AT the annual meeting of the American Public Utilities Company, held in Grand Rapids, Mich., the afternoon of Monday last, Mr. H. L. Nason, of Messrs. H. L. Nason & Co., was elected a Director. This banking firm has since the organization of the Utilities Corporation, been associated with the financial representatives of the American Public Utilities Company.

SOME days ago the Sacramento (Cal.) Natural Gas Company offered to sell its plant to the city, on a valuation basis agreed upon by two engineers, acting respectively for the city and the Company.

DEAR JOURNAL: Perhaps Harry Schaper, Chief Clerk of the Milwaukee (Wis.) Gas Company, does not know how to run an outing; then, again, perhaps he does. But, to get away from that question, yours truly will be permanently satisfied if it is referred for answer to anybody who took part in "the joys" of the Company's outing at Waukesha Beach, the afternoon (and evening) of the 14th inst. At 9 A.M. of that date hundreds of the Company's men met in front of its office to board special cars for the Beach, and at least every other one carried a horn, each of which seemed loaded with an assortment of notes that would seem might be of use to the preternatural who is to sound the trump, when Nature's ending is at hand. Of course, such outings, once you get through with them, have a likeness that puts subsequent recording thereof quite of the same order; but let me say we all enjoyed ourselves hugely, and all that was left of a bountiful dinner repast wouldn't seem a crumb to a member of the tribe "Weary Wiggles." The swiftest (and also the "screamiest") event was the baseball game between "9 Long Ones" and "9 Short Ones;" in fact, 'twas almost as funny as the celebrated game that was played on the Casino Beach field, the Astoria Light, Heat and Power Company, Astoria, Long Island, last year. Like then so was it at Waukesha Beach some days ago. All the scorekeepers that ever lived could not keep track of a single inning, let alone keeping tables that represented the eventual result. The day was heartily enjoyed, and all hands were back in town before 9 P.M.

(*Continued from page* 119.)

But this is not anything like all that it is essential for such aspirants to know. They must remember, also, that one of the surest methods of introducing their goods to the people of the Continent is to display them at big *bona fide* international exhibitions on the Continent, and one of the surest methods of creating a demand for them, to achieve success (and make the most of it!) is the competitions usually organized in connection with these shows, this being advice the soundness of which many of my readers could doubtless confirm by relating their own experience. Further, they should by no means neglect to have samples on view at as many of the numerous Continental "annual markets" as possible, and, in particular, at the famous Leipzig, Frankfort-on-Maine and Nijni-Novgorod (Russia) "fairs," which are visited by buyers from all parts of the world.

The only warning it is here necessary to give them is that they must take care that the exhibitions they send to are *bona fide*, as those of the bogus kind, which are got up solely for the enrichment of the promoters, by the broadest distribution of utterly worthless medals and diplomas, which are awarded to anybody prepared to pay for them, are, unhappily, very common in all the countries under notice. So common are they that the business men of, commercially, the most "go ahead" of these States some years ago founded a special organization to discourage them. I allude to the "Ständige Ausstellungs Kommission" (Permanent Exhibitions Committee), of Berlin, W. Its name and address may be noted as those of a corporation which may confidently be applied to for perfectly trustworthy advice whenever any of my readers are thinking of sending to an exposition, not only in the Fatherland, but anywhere abroad, as to the nature of which their only guide is the, possibly, quite misleading prospectus of the originators.

It is of indubitable importance, again, for all British would-be exporters of gas appliances to recollect that among the largest trans Channel retailers of English articles of the sort are the vast and ever-increasing army of big departmental storekeepers of the Whiteley, Harrod and Selfridge tppe (such as the of the Bon-Marché, the Magasins du Louvre and the Bazar de l'Hotel de Ville in Paris; Vertheim's, Jaudorf's and Hermann Tietz's "Warenhäuser," in Berlin, the Bocconi Brothers' establishments in Rome, Milan, Naples and Florence, and those of Leonhard Tietz in Belgium; that among these stores are several carried on under the style of "Old England," in, besides other centers, Berlin, Geneva and Rome, which make a feature of all kinds of English wares, and that gas fittings of the smaller sorts, such as tubing and burners for lighting and cooking, are stocked by many Continental grocers.

The Demand of the British Colony.—And mention of this brings me to a fact which it is, perhaps, still more essential for the traders addressed to keep in mind—that dotted about the European mainland are very many places, not only extremely well frequented by English people, but which boast large colonies of permanent British residents, and are hence deserving of their most particular attention. Among these are most of the Italian capitals, including Rome, Florence, Venice and Naples, the principal towns on the French and Italian Rivieras (such as Nice, Cannes and Mentone), many of the best known German, Austrian and French health resorts (such as Wiesbaden, Homburg, Carlsbad, Marienbad, Biarritz and Pau), most of the leading Swiss centers (notably Geneva, Lausanne, Montreux, Vevey, Interlaken, Lucerne and Lugano), many of the towns on the Rhine, most of the show places and bathing resorts of Belgium and Holland, many of the French *bains de mer* (such as Trouville, Boulogne and Dieppe), and, of course, Paris, Berlin, Vienna, Munich, Dresden, Tours and Rouen; and I may even throw out the suggestion that in many of them English retail members of the industry would find it worth while to open shops mainly for the supply of the local British population. I am encouraged to give this hint by my knowledge of the eagerness exhibited by most Britishers who live abroad to furnish their dwellings as much in the fashion obtaining at home as may be, and also by my remembrance of the brilliant success which has attended the establishment of grocery, stationery and drapery stores by Englishmen in many of the places on the Continent where the natives of this country "most do congregate."

Another thing I would emphasize at this stage is that there are, naturally, certain parts of the Continent to which gas appliances of British manufacture may be sent with more advantage than to others, and in this connection I would particularly draw attention to the well-tried extraordinary suitability of France, Germany, Italy, Switzerland, Belgium and Holland as markets for such articles. I employ the term "well-tried," however, advisedly, because among the rest of the countries concerned there are two, at any rate, which, though each offers great possibilities for the expansion of their business, have, so far as my observation goes, been hitherto, comparatively speaking, somewhat neglected by our gas fitting and allied industries. They are Austria and Russia, and as a Briton whose patriotism has not been diminished by a long residence abroad, I can only wish that what I have said respecting them may produce a remedy.

Hints to Traders and Travellers.—But it is clearly absurd to hope to do any large amount of trade across the Channel without the adoption of a carefully planned commercial campaign; as it also is without knowing something—and the more the better—of the peculiar requirements of each separate Continental country. For example, it is well for an exporter of lamps to be informed that the rooms in most German, Italian and Spanish habitations are very spacious, and, therefore, require a powerful artificial light, and, for dealers in gas apparatus generally, the German housewives greatly favor gas-heated flatirons, and prefer gas cookers that can be placed on the top of their altar-like kitchen stoves; further, that in very few places on the European mainland does one find bath rooms with hot water laid on. Whence in nearly all there is a big demand for gas-heated geysers, as, for a similar reason, there is for gas boilers of all descriptions, and especially for such as are designed for culinary purposes.

It is obvious, too, that on the Continent, as elsewhere, those traders in every branch do the most business who are the most liberal advertisers; but this is a truth worth noting all the same. And it reminds me of one equally important—*i. e.*, that the artistic sense of most Continental tradesmen is remarkably keen, and their fondness for decorating their shops with tasteful designs having reference to the articles they stock, very striking, and that, accordingly, those British firms are the most likely to induce them to make a display of their wares who can supply attractive showcards or posters with the goods. To which I may add that "Continentals," just as much as ourselves, are very ready to welcome any novelties in the way of gas fittings or appliances, the merits of which are properly brought to their notice, this remark applying especially to the Germans, and to goods suitable for presents.

It remains for me to make an important observation as to commercial travellers, and that is that it is essential for these gentlemen not for a moment to allow themselves to be led astray by the still very prevalent belief that with English it is possible to "get through" anywhere on the Continent. No doubt it is so for those who travel for pleasure, and put up at big international hotels; but for a "man of the road" a thorough working knowledge of the country he goes to is imperative, and in some Continental countries he will find it a distinct advantage, at least, to be conversant with more than one foreign tongue—as, for instance, in Austria, where both German and Hungarian are necessary; Belgium, where the greater part of the population speaks French, and the smaller Flemish; and Switzerland, which, linguistically, may be divided into three parts, each having a special "lingo" of its own—the one French, the second German, and the third Italian. Also, he should be thoroughly familiar with foreign values and measures, and by an intelligent study of consular reports should keep himself posted up as to foreign customs regulations, the more so as these are subjected to frequent revision.

These final remarks I address, I repeat, especially to "commercials," and I place the more stress on the first, as, in negotiating with such agents, even the very large number of Continental traders who know English prefer to use their mother tongue, so that in other branches I have even known heads of foreign mercantile houses decline to deal with travellers unable to conform to this natural predilection, which (coupled with what I have said regarding values and measures) should ever be borne in mind also by every manager of an English firm when preparing catalogues, price lists, show cards and labels for the European mainland, and in particular for the Latin countries, such as France, Italy and Spain. It is common to most traders, even in "polyglot Germany."

New Maine Public Utilities Law.

The authorities of Maine, by an Act passed in the last legislative session, have created a Public Utilities measure, which is to supersede the former Railroad Commission. Its scope embraces all public utilities, and now awaits the action of the voters to cause it to become operative.

Organization.—Senate Bill No. 453, passed by the Maine legislature, establishes a Public Utilities Commission of three members. The Governor is to appoint the Commission and designate a chairman with the advice and consent of the council. The Commission has the appointment of a clerk and assistant clerk. Members and employees are prohibited from having any relations or ownership or employment with any public utility operating within the State, holding any

other office under State or federal government or serving on any political committee under penalty of removal. Salaries are to be: Chairman, $5,000; each other member, $4,500; the clerk, $2,500; and assistant clerk, $1,500. Terms of office are for 7 years, expiring in rotation, the chairman to have the first term of 7 years, one Commissioner 5 years and another 3 years. The Commission has power to employ professional or other assistance for investigation.

Sections 4, 5, 6, 7 and 8 confer general powers of investigation upon the Commission, and require public utilities to extend facilities for such inspections and investigations. The attorney general may be called upon to aid in any investigation, hearing or trial and to institute and prosecute actions for the enforcement of the act.

Jurisdiction.—The term corporation, as used in the act, includes municipal and quasi municipal corporations. "Public utilities," as used in the act, includes common carriers, gas companies, electrical companies, telegraph companies, water companies, warehousemen, telephone companies and wharfingers.

Rates and Service.—Section 10 requires every public utility to furnish safe, reasonable and adequate facilities at reasonable and just rates, and prohibits unjust or unreasonable charges.

Uniform Accounts.—The Commission may prescribe uniform accounts after consideration of "any system of accounting established by any federal law, commission or department and any system authorized by a national association of such utilities." Accounts of subsidiary business shall, upon order of the Commission, be kept separate and available for inspection by the Commission. The Commission is required to prescribe forms of all books, accounts, papers and records required to be kept; also shall cause to be prepared suitable blanks for carrying out the purposes of this act, and shall, when necessary, furnish such blanks to each public utility. No other books, papers or records than those prescribed or approved by the Commission shall be kept, except that nothing shall prevent companies from complying with laws regulating interstate commerce. Accounts shall be closed June 30, and reports made on or before September 1. "The Commission shall provide for the examination and audit of all accounts, and all items shall be allocated to the accounts in the manner prescribed by the Commission."

Publicity of Rates.—Within a time fixed by the Commission rate schedules, which shall be open for public inspection, shall be filed, showing all rates in force at the time, which shall not exceed those in force January 1, 1913, except for rates under jurisdiction of the Interstate Commerce Commission, which shall be those in force when this act goes into full effect. All rules and regulations affecting rates charged or to be charged shall be filed with and as a part of such schedules. The Commission shall designate as much of such schedules as it shall deem necessary for the use of the public, and these shall be printed in plain type and kept on file in every station or office of said public utility where payments are made by the consumers. Joint rates shall likewise be printed and filed and held open for public inspection.

Rate Changes.—No change shall hereafter be made in any schedule except upon 10 days' notice to the Commission. Copies of all new schedules shall be filed in every station and office of a public utility where payments are made by customers or users 10 days prior to the time the same are to take effect, unless the Commission shall prescribe a less time.

Section 25 provides against discrimination in rates, prohibiting any departure from the published schedule.

Rate Classification.—The Commission is required to provide for a comprehensive classification of service for each public utility, to which the utility must conform its schedules of rates.

Consent of Commission to Incorporation.—No telegraph or telephone or gas or electric company may supply service in any town or section of the State where a similar utility is operating or authorized to operate, without the consent of the Commission before it furnishes its service, after a public hearing and declaration by the Commission that public convenience and necessity require such second public utility. Such consent to operate, manage or control any public utility may be only granted to a corporation organized under the laws of the State of Maine, or authorized by such laws to do business in the State.

Anti-discrimination Clause.—Section 30 provides against discrimination by giving service at a lower compensation in consideration of the furnishing of a part of the facilities incident thereto, provision being made that this section does not apply to the rental of facilities incident to heat, light, water, power, telephone or telegraph service at a reasonable rental.

Section 31 provides: "If any public utility make or give any undue or unreasonable preference or advantage to any particular person, firm or corporation, or any undue or unreasonable prejudice or disadvantage in any respect whatever, such public utility shall be deemed guilty of unjust discrimination, which is hereby prohibited and declared unlawful." The soliciting or accepting of rebates, discount or discrimination is prohibited under penalty. Exception is made in favor of charitable and other recognized purposes of public interest. Utilities are empowered to carry out present contracts, but when they become terminable they may be terminated upon order of the Commission.

Investigation of Accidents.—Investigation shall be made immediately of the cause of any accidents resulting in the loss of human life, or in personal injury or damage to property. The Commission may make such investigation as is in its judgment required. Notice to the public utility interested and opportunity to be represented at hearings are required, and the Commission has power to make orders or recommendations as a result of such accidents. Accident reports must be filed with the Commission in the manner prescribed, and reports of all accidents resulting in loss of life made immediately by telephone or telegraph, followed by a detailed written report. Recommendations of the Commission and reports to it are not admissible as evidence in damage suits.

Physical Valuation.—Section 34 says: "Said Commission shall have power, and it shall be its duty, to fix a reasonable value upon all the property of any public utility used or required to be used in its service to the public within the State whenever it deems a valuation thereof to be necessary for the fixing of fair and reasonable rates, tolls and charges; and in making such valuation they may avail themselves of any reports, records or other information available to them in the office of any State officer or board."

Approval of Securities.—Securities, other than notes for not over 12 months, may be issued only upon authorization by the Commission; this provision not to apply to securities heretofore lawfully authorized and issued; provided, however, that the Commission may approve any issue heretofore authorized but not issued. Prior to authorizing securities, the Commission may hold hearings, examine witnesses, books, papers, contracts, etc., as it may deem of importance. Orders authorizing issue of securities are not to limit or restrict the powers of the Commission in determining and fixing rates. No corporation need apply to the Commission for authorization of securities to provide funds for work upon its property without the State. Issuing of securities other than as just mentioned in the exceptions, without the order of the Commission, is prohibited. Declaring of stock, bond or script dividend or division of the the proceeds of the sale of its own or any stock, bond or script among stockholders without the consent of the Commission is prohibited.

Control of Leases, Consolidations, etc.—To sell, lease, assign, mortgage or otherwise dispose of or encumber the property of any utility, or effect mergers and consolidations is forbidden, unless specifically authorized by the Commission, and every such transaction not so authorized is declared void. Any such act when authorized by the Commission shall not be construed to revive or validate any lapsed or invalid franchise or permit or to enlarge or add to the powers or privileges contained in the grant or any franchise or permit or to waive any forfeiture.

This prohibition does not adhere to the transfer of any property which is not necessary or useful in the performance of the company's duties to the public. The acquisition of capital stock of any other public utility, without the authority of the Commission, is prohibited, and all assignments or transfers, direct or indirect, in violation of any of the provisions of this section, are declared void. This prohibition does not extend to prevent the holding of stock hitherto lawfully acquired, or to prevent the acquiring of additional stock by a public utility which now owns a majority of the stock of such other utility.

Physical Connections.—The Commission has power to order connections between the lines of telephone or telegraph companies for intercommunication, and may establish joint rates, except for interconnection for local messages in the same city or town; may establish rules and regulations governing service, and division of cost, in case the companies are unable to agree. When public convenience and necessity require, it may require joint use of conduits, subways, tracks, wires, poles, pipes or other equipment when such use will not result in an irreparable injury to the owner or other users, or in substantial detriment to the service, and may prescribe reasonable compensation and terms and conditions of such joint use when the companies affected are unable to agree.

Complaints.—The Commission may consider complaints by 10 persons, firms, corporations or associations aggrieved in regard to any rates, or regulation of any utility, or in regard to inadequate service or failure to supply service. No order shall be entered without a formal public hearing. Notification shall be given the utility affected immediately upon filing of a complaint. Date for hearing shall not be set until the utility has been given 10 days for removing the cause of complaint, and at least 10 days' notice shall be given of the hearing. The Commission has power to fix and order such new rates, regulations, measurements, practices, etc., as may be just and reasonable. Investigation of rates and practices may be carried on upon the initiative of the Commission, issue notice for hearing to the affected utility, and after such hearing issue such order as may be just and reasonable. Utilities may make complaint in any matter affecting their own products, service or charges.

Appeal.—Section 53 provides for methods and intervals of appeal. Definite intervals are allowed for the filing of papers by counsel before the Supreme Court. The act says such questions of law shall be considered and decided by the law court as soon as may be; or, if the parties so agree, such questions shall be certified to the next term of the law court. While questions of law are pending on exceptions to a ruling of the Commission, no injunction shall issue suspending or staying any order of the Commission, and compliance with all orders is required except upon such terms as the Commission may order and direct and orders in litigation. The burden of proof, to show that an increase of rates is just and reasonable, is placed upon the public utility, and in all litigation the burden is on the party against the Commission. Immunity on account of acts testified to is guaranteed to witnesses before the Commission.

May Suspend Rates.—The Commission is given power, in order to prevent injury to the business of any public utility or to the interest of the people, or in case of any emergency which the Commission may adjudge to exist, "temporarily, to alter, amend or, with the consent of the public utility concerned, suspend any existing rates, schedules or orders relating to or affecting any public utility. Such rates so made by the Commission shall apply to one or more of the public utilities in this State or to any portion thereof as may be directed by the Commission, and shall take effect at such time and remain in force for such length of time as may be prescribed by the Commission."

Protection of Securities.—Section 67 provides that "Any officer, owner or agent of any public utility who shall knowingly or willfully make any false statement to secure the issue of any stock, bond or other evidence of indebtedness, or who shall by false statement knowingly or willfully made procure of the Commission the making of the order herein provided, or issue with knowledge of such fraud, negotiate or cause to be negotiated any such stock, bond, note or other evidence of indebtedness in violation of this act, shall, upon conviction thereof, be fined not less than $500 or be imprisoned in State prison for not less than 1 year nor more than 10 years or both."

The act permits organization July 1, 1913, and all other provisions become effective September 1, 1913. The Railroad Commission and State Water Storage Commission are abolished and their powers and duties placed on the new Commission, in so far as they may be not in conflict.

Special English Correspondence.

COMMUNICATED BY NORTON H. HUMPHRYS.

SALISBURY, ENGLAND, August 9, 1913.

Memorial Tablet to William Murdoch.—The Present Position of the Gas Industry.—Waste of Ammonia.

A very interesting gathering took place in Scotland a few days ago, when about sixty gentlemen, including Mr. William Allen, President of the Institution of Gas Engineers, Mr. J. McLeod, President of the North British Association of Gas Managers, Mr. Thomas Newbigging, Mr. G. R. Hislop, of Paisley, and other well-known and honored members of our profession, assembled at a small cottage in Lugar, Ayrshire, the birthplace of William Murdoch, generally recognized as the inventor of gas lighting. For some time past the North British Association of Gas Managers have felt that some record of that celebrated engineer and mechanic, whose inventions are in sober fact and not as a figure of speech, "too numerous to mention," should be affixed to the wall of the cottage, and have provided a handsome bronze tablet, carrying a suitable inscription, and an excellent bust portrait in relief, and the object of the meeting was to witness the unveiling of the memorial. Mr. McLeod invited Mr. G. R. Hislop to uncover the tablet, and after a few suitable remarks the party adjourned to a luncheon, hospitably provided by Mr. William Angus. At the close, speechmaking was appropriately opened up by an eloquent appreciation of the life and work of William Murdoch, delivered by Mr. Hislop. Mr. J. Hepworth proposed "Success to the Gas Industry," to which Mr. William Allen responded. Mr. Newbigging followed with a powerful and characteristic address. Mr. J. W. Napier gave the health of their host, and Mr. Angus replied.

Mr. Hislop mentioned that, in addition to gas lighting, William Murdoch invented the locomotive engine, the high pressure engine, the oscillating cylinder, the double D-slide valve, the circulation of hot water for domestic purposes, and mang other important machines and processes that are in daily use. And the visitors inspected a cave adjoining the cottage, in which Murdoch is supposed to have made his first experiments by heating coal in an old iron teapot, and igniting the gas as it issued from the spout.

Murdoch lived until 1839, and therefore saw gas lighting coming into general use. By that time a gas undertaking was established in any town of 50,000 population or more. But the unassuming Ayrshire mechanic probably had no idea of the magnitude that it would attain within 70 years. We have just been talking of gas made in a teapot. The accounts of the Gas Light and Coke Company, for the 6 months ended 30 June, 1913, have just been issued, and they report a consumption of over a million tons of coal, and a make of 15,000 million cubic feet of gas. It is not unappropriate to jump from the humble beginning to the present position. The magazines that record the foregoing event, and illustrate it freely with excellent photographs, also contain some of the reports of gas undertakings for the first half of 1913. These accoun ts are all satisfactory, and the comments on them are for the most part optimistic in character. The continued advance in price of coal is a matter that occasions some concern, and there is a strong impression that it is due to artificial and not natural causes. That it is the result of combination, and that the additional price they are called upon to pay far exceeds any increase of wage received by the workmen. Not only is there the question of price, but also that of quality. Most elderly gas engineers will agree that the ideas of coal factors on the subject of "screened gas coal," "good gas coal," and such like terms usual in contracts, and supposed to guarantee to the buyer full value for his money, are much more lax than they were 40 years ago. The coal contains more dust and foreign matter, and the average quality now supplied would have been the origin, to say the least, of energetic protest at the earlier period. Gas undertakings have worked smartly, and with some degree of success, to increase the sales both of gas and residuals, by the adoption of modern commercial methods. And it is hard lines that neither the shareholders nor the gas consumers get the slightest benefit, but that the whole results of their labors go to enrich coal factors and colliery owners. The increasing popularity of gas for cooking and hot water apparatus appears to have affected the sale of house coal, and coal merchants are issuing leaflets containing disparaging statements as to the quality of gas and the products of combustion therefrom, but I do not hear of any gas company losing even a single customer on that account. Attempts to further business by the discreditable process of casting mud upon competing lines usually result in indirect advertisement of the bespattered article, as electricians have found by bitter experience. In addition to the price of coal, and the consequent advance on all commodities in which coal is concerned, there has been a very serious rise—20 to 30 per cent.—on metals of all classes, iron, copper, lead and tin. This is an important item, considering that most gas undertakings supply all kinds of apparatus on hire at fixed moderate rates which cannot be altered except at very great inconvenience. The general experience is that a large section of the public is willing to use gas liberally if it can be got without initial expense. They do not object to periodical payments for hire, but for various reasons would not entertain the purchase of a gas burning outfit.

Turning to the income side, one is reminded of a remark in the current number of the AMERICAN GAS LIGHT JOURNAL just to hand, to the effect that the more the advertisements the greater the sales. This is certainly the general experience here, for it is more than a coincidence that directly the British Commercial Gas Association got settled into harness, increased sales are and have been the general experience. The same may be said in a more ma rked degree of sulphate of ammonia and the Sulphate of Ammonia Committee. In

England the levy on members is 9d. a ton on the make, and the Chairman of the Committee points out that a similar association in Germany gets 2s. 6d. per ton, and is able to give an excellent return for the money. Many of the English provincial gas undertakings are now placing 50 per cent. or more of their make of sulphate in their own district, whereas, formerly the whole make went to the shipping factors.

With these points in view, it is interesting to notice that the Metropolitan Gas Companies are promoting combined action in regard to the sale of coke. Possibly this example may lead some of the large provincial undertakings to see that better results would follow by exploiting the coke resources in their own districts than by disposing of the surplus to dealers at a take-it-away price, with the result that large parcels of coke are dumped into country districts at prices 50 per cent. below the local rates. Sometimes cheap parcels work their way back into the district from whence they came, with the result that the original vendors are undersold in their own market with their own product. But the usual effect is that the market price of coke in small towns is permanently kept at 10 to 20 per cent. below actual intrinsic value, by cheap deliveries from a distance of 50 miles or more. The figures representing the receipts for coke and sulphate, in a well managed concern, now approach one-half of the receipts for gas. Dividends may be earned in the retort house, but it is evident that they can be lost by bad selling of the residuals, and if more commercialism is desirable as regards gas, it is equally so in the matter of the other products. Indeed at the present situation it is an indispensable adjunct to successful management. In this connection the excellent work done by the various district "commercial sections" attached to our district associations should not pass unnoticed.

Gas undertakings, as a rule, do not find much sympathy or assistance in official quarters. The general idea with public inspectors, whether local or national, is to make things hot for them, and to regard them as a public nuisance, rather than to give them their due as large employers of local labor, and substantial contributors both to local rates and national taxes. It would be easy to quote instances where officials, presumably acting in the interests of the public, have put them to a large expense. As a rule they do not reduce their profits or rates of dividend to meet charges of this kind, so it is obvious that the consumer really has to pay the piper. But a decided exception must be made in this respect with regard to the Chief Inspector under the Alkali Act, Mr. W. S. Curphey, and his staff of district inspectors. Not that they knuckle down in any sense, or allow a coach and four to be driven through the Act. But they always follow the assumption that no one is more willing or anxious to comply with the provisions of the Act than the gas engineer, or more appreciative of assistance to that end. If other inspectors followed similar lines, a great deal of friction and unpleasantness, not to say money wasted in legal expenses would be saved, and applicable to working expenses, thus assisting towards the reduction of selling prices. So the gas engineer always looks for the visit of the Alkali Act Inspector with unmitigated pleasure. Perhaps I should explain that the Alkali Act does not cover the manufacture of gas or coke, but only the sulphate plant or other apparatus for working up ammoniacal liquor, and it is the business of the inspector to see that sulphur compounds or other noxious gases are not allowed to escape into the atmosphere. The waste gases from the ammonia stills contain large quantities of sulphureted hydrogen. The usual plan is to absorb this by the use of an ordinary oxide purifier. In large works the utilization of the sulphur may be considered, and the Claus or other similar process used, for the production of solid sulphur. It has been the practice, for some years past, for the Chief Inspector to issue an annual report, and the practical value of this document increases year by year. It is something more than a mere summary of the number of works under control, and the cases of default. It takes note of practical difficulties such as the discoloration of sulphate and the souring of oxide, and records the methods adopted as remedies, and of topics such as the difference in composition of ammoniacal liquor in July and in December.

In the current report, which covers 1912, one of the Inspectors, Mr. Sutton, directs attention to the loss of ammonia due to careless handling of the liquor in gas works. Approximately 80 per cent. of the total ammonia is free or in the form of volatile salts, and as such is easily lost by evaporation on exposure to air at ordinary temperatures. Yet it is common to see ammoniacal liquor fall or splash into large and nearly empty tanks, instead of passing quietly by a down pipe carried below liquor level. The covers of the underground tanks and of the seal boxes are badly fitted or habitually left open, and overhead tanks have no covers at all or are unsoundly protected, even if exposed to heat or to the direct rays of the sun. And wonder is expressed that the yield of sulphate per ton of coal carbonized is appreciably below the average. Storage should be exclusively confined to underground tanks, and the ventilation vents should receive careful attention and not be larger than is absolutely necessary. Intermittent liming is another source of waste, and the use of a continuous adjustable feed is recommended. The Inspector might have added to these the use of old and untested tanks. Very often a discarded holder tank is utilized as a store tank, with no preparation other than roofing over. A slight leakage of a holder tank is unnoticed if no greater than the rainfall, but it represents a considerable proportion of the yearly make of ammoniacal liquor. And even when a new tank is built, probably in cement work, I have known it to be put into use without any test as to soundness. The usual methods of circulating the liquor through a scrubber or washer, in which the liquid passes into an open tip bucket or such like apparatus, leave something to be desired as regards economy of ammonia.

New Methods and Appliances.

THE CENTRAL FOUNDRY COMPANY'S BASEBALL TEAM.—The baseball team of the Central Foundry Company, New York, here reproduced in group, have completed, in the most successful way, the first half of their season, the percentage of games won figuring at .714. The

management fully believes that the team will increase their present percentage before the end of the season, by which time they will have played games with a large number of representative teams in the local territory.

A SHORT METHOD OF DETERMINING THE EFFICIENCY OF OXIDE.—In an article on this subject, contributed by Mr. A. F. Kunberger, to the "Journal of Industrial and Engineering Chemistry," he remarks that the engineer as a rule is not as much interested in how much total iron oxide is contained in a batch of oxide, as in how much hydrogen sulphide it will remove per ton or per bushel before it is saturated and requires renewal. That the regular chemical analysis does not give this information is evident from the fact that one oxide containing almost twice as much Fe_2O_3 as another, may absorb but 1-tenth of the H_2S absorbed by the latter.

To determine the quantity of H_2S a given oxide would, as a preliminary experiment, decompose, the water formed by the reaction was absorbed in a weighed tube containing fused $CaCl_2$. It appeared, however, that these results must be incorrect, unless the amount of

moisture in the oxide could be correctly estimated before and after the test, so as to correct for the moisture originally contained in the oxide and carried along by the water formed by the reaction. This requires time, and, owing to the rapidity with which some oxides revivify, it is almost impossible. Without this correction the method would be lacking in accuracy to such an extent that it would be of little value, and to avoid this the entire products must be weighed. The results obtained by the present method are very satisfactory, and it has been in use for over a year, with good results. It enables one to determine in about 1 hour whether an oxide is very active, active, or indifferent.

The procedure is as follows: A glass tube, with a bulb at one end, *C*, is most suitable to hold the oxide tested, but a U-tube, or any tube that can be weighed on any analytical balance, will answer. In tube *C*, a layer of cotton is placed over the outlet to prevent any of the contents from passing through the outlet tubing. On this cotton is placed enough small, granular, calcium chloride to fill the bulb; it is then covered with a thin layer of cotton to hold the calcium chloride in place. Five grams of the oxide to be tested are next mixed with 2 grams of coarse sifted sawdust and placed in the tube, and covered with another layer of cotton to prevent any of the contents from falling out at the stopper end of the tube. The stopper is then inserted. The tube is accurately weighed, and the total weight noted. A U-tube, filled with calcium chloride, to dry the hydrogen sulphide issuing from the generator, is connected with the tube by means of a rubber tubing, and the whole connected with the generator. A piece of glass tube, with a hole the size of a small pinholo, placed between the U-tube and the generator, regulates the flow of gas.

The hydrogen sulphide from the Kipp generator, dried by passing through the calcium chloride in the U-tube, is decomposed by the iron oxide in the test tube. *C*, forming iron sulphide and water. The water formed is absorbed by the calcium chloride in the bulb of the test tube. The test is carried on for 1 hour, then the test tube is disconnected and weighed. The gain in weight represents the amount of hydrogen sulphide absorbed, or decomposed by the oxide. By dividing the weight of oxide into this weight, the percentage of hydrogen sulphide decomposed can be determined, and the sulphur calculated. The following analyses and fouling tests illustrate how much more satisfactory results can be obtained by the fouling test than by chemical analysis alone:

Sample No.	No. 1. Per Cent.	No. 2. Per Cent.	No. 3. Per Cent.	No. 4. Per Cent.	No. 5. Per Cent.
Iron oxide	47.36	64.00	65.92	72.32	76.90
Total H_2S absorbed in 1 hour	22.01	19.85	10.80	2.66	2.80
Total H_2S absorbed per unit of Fe_2O_3	46.5	31.0	16.4	3.7	3.6
After revivification	21.34	3.6	3.34	1.66	1.58

Since the fouling tests were borne out by results on a large scale in the works, one is encouraged to believe it will greatly reduce the work of the chemist, and at the same time give information that cannot be obtained from chemical analysis alone. Some oxides are very active when new, but revivification is slow and incomplete, and on second fouling they give far lower results. For this reason it is sometimes desirable to carry the test far enough to determine the total absorbing capacity of an oxide. In this case it is best to keep the $CaCl_2$ and oxide in separate tubes, but they should be weighed together. After the first fouling, the oxide tube is disconnected from the CaCl, tube, and air passed over it until completely revivified. To prevent an oxide which has a tendency to revivify very rapidly, from getting too hot and burning, it is advisable to pass the air used for revivification over water so as to saturate it with water vapor. After complete revivification, the tubes of oxide and CaCl, are again weighed and connected with the Kipp apparatus, and fouled a second time. This second fouling, as a rule, is sufficient to show how active the material is, for if the results of the second fouling are very close to those of the first, the material is very active, but the test can be repeated the number of times the oxide is revivified in practice, and the entire capacity of the oxide can be determined before it is placed in service.

Items of Interest
FROM VARIOUS LOCALITIES.

THE Western United Gas and Electric Company has been granted the right of way to extend its mains to the settlement of Hampshire, Ills., from the point known as "Five Corners," just below Union. The Hampshire agreement is to last for 50 years.

"B. F. T., writing from Holyoke, Mass., under date of the 16th inst., says that the wiring system of the Farr Alpaca Mills, of Holyoke, is to be run in underground conduits "in manner similar to that done by the Public Lighting Department of Holyoke." The contract, which means the laying of several thousand feet of conduits between, under and about the many buildings of the Alpaca Company, has been awarded to Mr. P. J. Kennedy, Jr.

THE contract for remodeling the office buildings of the Western United Gas Company, in St. Charles, Ills., has been awarded to Ald. Carl J. Eckman, of Batavia, Ills., who was also the contractor for reconstructing the Western's office quarters in Batavia. The St. Charles headquarters will, in fact, be a reproduction of the Batavia office quarters.

MR. HENRY O. LOEBELL, since 1904 with the Spokane Falls (Wash.) Gas Company as it Commercial Manager, will, on the 1st prox., assume the duties attaching to the position of Commercial Manager of the Brantford (Canada) Gas Company, the properties of which were recently taken over by the H. L. Doherty syndicate.

THE Goshen (Ind.) Company is comfortably installed in its handsome and commodious office quarters in the Mummert building, 206 South Main street. This change will be greatly appreciated by the Company's patrons, and by the Company itself, as well.

SUPERINTENDENT A. B. MORTON, of the Rome (N. Y.) Gas, Electric Light and Power Company, has planned, and is actually carrying on, an extensive system of main replacements and extensions that are bound to result in great satisfaction to present and prospective (of whom there are many) users of gas in this thriving New York section. Mr. Morton estimates that these betterments will increase the carrying capacity of the system at least 50 per cent., which certainly looks a sensible return on an expenditure of $15,000 or so.

MR. I. W. PEFFLY sailed from New York not long ago for a two months' trip through Europe, during which he will visit London, Paris, Berlin, Vienna, etc. While the trip is in the main a vacation outing it may be taken for granted that very little in the way of "newness" regarding gas ranges and the like will escape "Peff's" range-of-vision, so to speak. While "Peff." is well over the youthful time of his career, he still remains a decidedly quick goer; wherefore his friends (who surely are many) may rest assured that his stay in Paris will not be unduly lengthened.

SOME days ago that proper body, known as the Hempstead (Long Island) Town Board, dismissed the petition of a number of taxpayers of West Hempstead for the creation of a gas lighting district in the named section. It seems to have been determined that a majority of the taxpayers failed to join in the petition. To-morrow evening, however, the Board will have a public hearing on the petition of a number of taxpayers who desire the erection of two separate districts, to be known respectively as West Hempstead and Hempstead Gardens.

"B. R. M.," writing from Harrisburg, Pa., under date of the 18th inst., says: Dear JOURNAL: About 10 days ago the last of the high-powered lamps installed near 13th and Market streets, completed the gas whiteway of the Allison Hill section. And, let me tell you, the citizens are all acclaiming the beauty of the show, and are wonderingly expressive in their expressions that they did not know such

things could be done with gas. Over 50 of these lamps were placed outside of as many business places in proximity to 13th and Market streets; and the city at this point is certainly beautifully attractive at night. And if any one needs proof of this just let them "view fair Harrisburg at night," when the moon is not at her best. Some time ago 40 lamps were set up on North Third street, between Herr and Broad streets, in the uptown business section, and that illumination zone is also a traveled promenade. These are put in use at 7 P.M. and extinguished at 11 P.M. Then there are many sporadic examples throughout the city. But the 50 in and around 13th and Market, being close together, make the best possible showing. By special arrangement with the Company, the merchants may light and extinguish the lamps at any hour they name; but as a rule the Hill's whiteway lasts from dark until close to dawn.

NEGOTIATIONS are still underway looking to the amalgamation of the American Cities Company, of New Orleans, La., with the United Gas and Electric Corporation, represented by Bertron, Griscom & Co., 40 Wall street, New York.

WE understand that the attorneys for the city of Spokane, Wash., and the Spokane Falls Gas Light Company, have agreed upon a compromise by means of which all litigation between the parties will terminate. The Company will not appeal from the reduced rates, effective the 1st ult., and will pay the amount due on back franchise tax account, together with 2 per cent. on future gross earnings. The city agrees to take no action for repeal of the 1907 franchise, until the relative standing of the interests of the Doherty Operating Company and Charles Theiss are threshed out in court.

SOME days ago Ald. Riley introduced a bill in the City Council, Charleston, S. C., of this nature: It provides for the appointment by the Mayor, with the consent of City Council, of an inspoctor of gas and electric light, whose duty it will be to inspect meters under suitable classes to be hereafter determined. The salary of the inspector is placed at $1,500 per annum.

THE Orangeburg (N. C.) City Council has passed an ordinance giving to Edward L. Rieha and associates the right to construct and operate a gas plant in the named place.

AT a recent meeting of the Common Council, of Rockville, Conn., the matter of formally petitioning the proprietors of the Rockville Gas and Electric Company for a reduction in the rates charged for gas and electric currents, was discussed. The debate terminated in an order tabling the matter until the return of President Warner, of the Company, who is now on his vacation. The tenor of the speech made by the mover of the resolution was to the effect that, should the Company decline to make "a reasonable concession," the Public Utilities Commission should be appealed to in the premises.

THE Tennessee State Board of Equalization, after a protracted investigation of the complaint of the Trustees of the Jackson Gas Light Company that the assessment of their properties was excessive, decided that the Board had no jurisdiction. Accordingly the matter goes back to the Trustees, and it is quite certain that mandamus proceedings will ensue, under which the case will be tried on its merits.

AT a special election, to be carried out the 22d prox., the voters will detefmine whether or not a new franchise shall be granted to the proprietors of the Cedar Rapids (Ia.) Gas Company. Some of the features thereof, in respect to conditions governing supply, pressure, purity, etc., of the gas supply are these: Within a radius of 1 mile from the works the pressure shall not be less than 3 nor more than 6 inches; beyond that zone the respective limits to be not less than 2 nor more than 6 inches. Provided, that the daily variation shall not exceed 100 per cent. of the minimum pressure; that is, if the minimum pressure is 2 inches, then the maximum shall not exceed 4 inches. In case the pressure at the consumer's meter is inadequate, through the lack of diameter of the service pipes, the Company will have 30 days (during other seasons than winter) to remedy the condition; should the complaint be made in the winter season the Company is to have until the following spring months to make the substitution. The gas shall contain no trace of sulphureted hydrogen, and a penalty of $10 shall be assessed, if tests on 3 consecutive occasions prove that such trace exists; in respect of ammonia content (in excess of 4 grains per cubic foot), the like penalty regarding sulphureted hydrogen will be exacted. Should the monthly average in respect of B.T.U.'s (600, gross) be lower than the standard, a fine of $100 is to rule. The total sulphur content is not to exceed 30 grains. In case of any disagreement between the authorities and the Company, the city is to appoint an arbitrator, and the Company shall name a second, these to select a third; their decision to be final.

THE selling forces of the Scranton (Pa.) Company have been directed to take up a gas iron selling campaign, and Manager Stack has called the attention of the Scrantonites to the fact through a rousing, big "ad." that appeared in the Scranton papers for the 16th. The idea of the "ad.," as shown in printer's ink, is rather a novel one. Seven athletic looking figures, clad in sprinters' trunks and long-distance running footgear, are represented on the run, in single file. The headpieces of the sprinters are gas irons; but that their identity may be shown is done by means of the names of the runners, printed under the feet of each. The septette has B. K. Carling for leader, with E. Butz bringing up the rear; but 'tis almost a "sure thing" that Butz will be nearer to the front than the illustration shows, when the totals have been turned in. Manager Stack figures that the cost of gas ironing (the price of the ironer is put a $1.90), at Scranton gas rates, will give the ironer 3 hours' work for 1 cent.

THE Board of Aldermen, Charlotte, N. C., seems to have developed a better mental standard through having reconsidered its prior action under which the Charlotte Gas and Electric Company was required to pay an annual license tax of $3,400—the former figure was $1,000. The Council, having listened to the recommendations of the Revenue Committee, put the license fee at $1,750. The authorities of Charlotte certainly should not be actuated by a desire to drive capital from their growing district, more especially in regard to repressing, through high tariffs, the activities of corporations that tend to make its territory more and more acceptable to those who would do business of all kinds within its territorial limits,

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"T. V. M.," writing from Los Angeles, Cal., under date of the 13th inst., informs us that Judge Wellborn has appointed Lynn Helm, Special Master, to take testimony in the action brought by the Santa Barbara (Cal.) Gas and Electric Company, against the authorities of Santa Barbara, to cause the determination that the ordinance adjusting rates for gas in the named place is confiscatory. The Court, some time ago, considered a motion for an injunction to restrain the operation of the ordinance, and the decision was averse to the petitioner. Now the complete question of the fairness of the rate sought to be operative ($1.35 per 1,000 cubic feet) will be thoroughly reviewed. Sixty days were granted each party to the action for the preparation of testimony, etc. This case will, of course, have a far reaching effect in the attitude that local authorities may assume toward the making of rates for an artificial lighting supply by corporations throughout the State engaged in such work.

THE income account of the New York City Edison Company, for the half year ended June 30th, as presented to the Public Service Commission on August 12th, during a hearing on the Edison Company's application for permission to issue $15,000,000 capital stock, in settlement of demand notes for that amount given to the Consolidated Gas Company, as then disclosed showed an operating revenue of $11,764,423, a net operating revenue of $4,335,426, a total net income of $4,929,763, and a balance for dividends on stock of $3,545,326. The funded debt, as of June 30th, was $38,076,000, and the total floating debt was $17,818,114, which includes the notes held by the Consolidated Gas Company.

THE Consolidated Gas, Electric Light and Power Company, Baltimore, Md., has awarded to the Webster Manufacturing Company, of New York, the contract for the construction of a coal conveyor on its property on Leadenhall street, South of Heath street.

MR. MORRIS W. STROUD, President of the American Gas Company, has returned from a two months' trip abroad. While in London he was the honored guest of the British Gas Institute during the semicentennial last June of that distinguished body.

The Market FOR GAS SECURITIES.

The balance in the week's trading in Consolidated shows a loss of one point in the bid. This decrease is likely due to the inactivity in the market for securities quotable at 125 and over. However, holders of this high grade security on investment account have the satisfaction of knowing that every dollar of its capital has real, solid, lasting value as its basis. The electrical division of its business improves at really an amazing rate, and the moneys therein invested in the last two years on plant account are bound to return big interest sums the next 10 years. The electrical physical development is of the best possible sort, and it certainly is on a huge scale.

Brooklyn Union is nominally a point lower, but the security is virtually lifeless so far as real transfer accounts are concerned. It is quoted to-day (Friday) at 126 to 129. Peoples, of Chicago, is a trifle weaker, at 113½ to 113¾, and Lacledes (both common and preferred) are advancing. However, these shares are far below their actual value, even if earning capacity be taken as the only base of estimate. The New Bedford (Mass.) Gas and Edison Company's shareholders assented to the Managers' proposition to increase the capital in the sum of 25 per cent. This means an issue of 2,650 shares, the upset figure of $200 per share having been agreed upon by the Trustees. That sterling concern (the American Gas Company) announces its regular quarterly of 1¾ per share. The inquiry for gas bonds continues quite active. The 1¾ regular, by the Peoples, of Chicago, is payable to-day, and the Central California Gas Company reports a gain in gross earnings for July, which amounts to well over 130 per cent., when compared with July, 1912.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

AUGUST 25.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$99,816,500	100	130	130¼
Central Union Gas Co.—				
1st 5's, due 1927, J. & J.	3 5 0,000	1,000	101	103
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	105	106
Mutual Gas Co.	3,500,000	100	157	157
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	99	101
New York & Richmond Gas				
Co. (Staten Island)	1,500,000	100	59	61
1st Mtg. Gold Bds. 5 p. ct.	1,500,000	—	98½	100½
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	103	105
Con. 5's, due 1945, J. & J.	1,500,000	—	96	100
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	100	102
Standard	5,000,000	100	102	104
Preferred	5,000,000	100	93	94
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	90	95
The Brooklyn Union	15,000,000	1,000	126	129
1st Con. 5's, due 1948, M. & N.	15,000,000	—	105½	107
Yonkers	299,650	500	130	—
Out-of-Town Companies.				
Binghampton Gas Works	450,000	100	—	—
" 1st Mtg. 5's	500,000	1,000	97	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	59	60
Capital, Sacramento	500,000	50	—	85
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed				
Gold Bonds	7,660,000	1,000	104	106¼
Columbus (O.) Gas Co., 1st				
Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. &				
Heating Co.	1,682,750	100	90¼	91
Preferred	3,026,500	100	75¼	80
Essex and Hudson Gas Co.	6,500,000	—	183	186
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co.,				
1st Mtg. 5's	1,350,000	1,000	100	101
Hartford	750,000	25	190	200
Hudson County Gas Co., of				
New Jersey	10,500,000	—	130	138
" Bonds, 5's	10,500,000	—	104	106
Indianapolis	2,000,000	—	7	80
" Bonds, 5's	2,650,000	—	90	93
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	290,000	1,000	97	100
Cincinnati Gas and Electric				
Co.	29,500,000	100	87	90
Kansas City Gas Light Co.,				
of Missouri	5,000,000	100	—	86
Bonds, 1st 5's	3,822,000	1,000	98½	99
Laclede Gas Co., St. Louis.	10,000,000	100	95	98
Preferred	2,500,000	100	—	102½
Bonds	10,000,000	1,000	102½	103
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	120	130
Madison Gas and Electric Co.				
" 1st Mtg. 6's	400,000	1,000	106	
Massachusetts Gas Companies, of Boston	25,000,000	100	91¼	91½
Preferred	25,000,000	100	93	93½
Montreal L. H.& P., Canada	9,000,000	100	210½	211
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	97	98
Bonds, 6's	6,000,000	—	127	128
New Haven Gas Co.	5,000,000	25	182	190
Peoples Gas Lt. & Coke Co.,				
Chicago	25,000,000	100	113½	113¾
1st Mortgage	20,100,000	1,000	102	102½
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104½	105½
Pacific Gas and Electric Co.	15,500,000	—	40	42
St. Joseph Gas Co.—				
1st Mtg. 5's	1,000,000	1,000	96	98
St. Paul Gas Light Co.	2,500,000	100	—	—
1st Mortgages, 6's	650,000	1,000	104	105
Extension, 6's	600,000	1,000	113¼	115
General Mortgage, 5's	3,447,000	1,000	94	96
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	101	103
United Gas Imp. Co.	55,502,960	50	172	174
Washington (D. C.) Gas Co.	1,600,000	200	450	460
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	—	—

MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

American Gas Institute.—Annual meeting, Richmond, Va., October 15-17, 1913. Officers: President, W. R. Addicks, New York City. Secretary, Geo. G. Ramsdell, 29 West 39th st., N. Y. City.

Canadian Gas Association.—Annual meeting Sept. 1913. Officers: President, Arthur Hewitt, Toronto, Ont.; Secretary and Treasurer, John Keillor, Hamilton, Ont.

Empire State Gas and Electric Association.—Annual meeting, New York City, Oct. 8, 1913. Officers: President, C. G. M. Thomas, Long Island City, N. Y.; Secretary, C. H. B. Chapin, 29 W. 39th street, New York City.

Gas Meters.—Monthly Section Meetings; Grand Commissioner, Will. W. Barnes, East Orange, N. J.; Gen'l Sec'y, H. Thurston Owens, La Crosse, Wis.; New York Section, Chairman, W. H. Pettes; Secretary, G. E. Smith, Sipp Avenue, Jersey City, N. J. Philadelphia Section; Chairman, Stanley Grady; Secretary, H. E. Stiteler, Broad and Arch streets. Cleveland Section, Chairman, F. R. Hutchinson; Secretary, Wm. Holtz, East Ohio Gas Co. New England Section, Chairman, T. W. Jennings, Boston; Sec., F. K. Wells, 69 Broad street, Boston. Winona Section, Winona, Minn., W. F. Clausen, Chairman. Bethlehem Section, Trueman Weithnecht, Chairman; Sec.-Treas., Truman Buss, South Bethlehem, Pa.

Guild of Gas Managers of New England.—Annual meeting, March, 1914. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, Walter G. Africa, Manchester, N. H.; Secretary, H. K. Morrison, Brockton, Mass.

Illinois Gas Association.—Annual meeting, March 18th and 19th, 1914. Chicago, Ills. Officers: President, W. F. Barrett, Chicago, Ills.; Secretary-Treasurer, Horace H. Clark, 115 No. Oak Park avenue, Oak Park, Ills.

Illuminating Engineering Society.—Annual meeting,——— September, 1913. Meetings of Sections, monthly. Pres., Preston S. Millar; General Secretary, J. D. Israel, 29 W. 39th street, New York City. Sections: New York, Secretary, C. L. Law, 124 West 42d street. New England, Secretary, H. C. Jones, 10 High street, Boston, Mass. Philadelphia, Secretary, L. B. Eichengreen, Broad and Arch streets. Chicago, Secretary, J. B. Jackson, 28 North Market street. Pittsburgh, Secretary, J. C. Mundo, Oliver Building.

Indiana Gas Association.—Annual meeting, March —— —— 1914. Terre Haute. Officers: President, A. S. Cooke, Terre Haute; Vice-President, A. C. Blinn, Evansville; Secretary-Treasurer, Philmer Eves, Indianapolis.

Iowa District Gas Association.—Annual meeting, May, 1914; ——— Officers: President, B. C. Adams, Lincoln, Neb.; Secretary, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, October—— 1913. ——— Officers: President, L. O. Ripley, Emporia, Kas.; Secretary and Treasurer, W. H. Fellows, Leavenworth, Kas.

Michigan Gas Association—Annual meeting, September, 17, 18, 19, 1913; ——— Officers: President, W. S. Blauvelt, Detroit, Mich; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April, 1914, Mexico, Mo. Officers: President, P. A. Bertrand, Joplin, Mo.; Secretary and Treasurer, P. W. Markham, Brookfield, Mo.

National Commercial Gas Association.—Annual meeting and gas show, Dec. 1-6, 1913. Philadelphia, Pa. Officers: President, C. W. Hare, Philadelphia Pa.; Secretary, Louis Stotz, 29 West 39th street, New York City.

Natural Gas Association.—Annual meeting, St. Louis, Mo., May 19 and 20, 1914; Officers: President, E. L. Brundrett, Kansas City, Mo.; Secy-Treas., T. Clive Jones, Delaware, O.

New England Gas Association.—Annual meeting, February, 18th and 19th, 1914, Boston. Officers: President, T. H. Hintze, Providence, R. I.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

New Jersey State Gas Association.—Annual Meeting, July —, 1913, Asbury Park N.J. President, C. F. Butcher, Freehold, N. J.; Sec'y-Treasurer, O. F. Potter, Newark, N. J.

Ohio Gas Association.—Annual meeting, February ——— 1914, Columbus, O.; President, John M. Garard, Columbus, O.; Secretary, L. B. Denning, Columbus, O.

Oklahoma Gas, Electric and Railway Association.—Annual meeting, Oklahoma City, May, ——1914. President, F. E. Bowman, Ada; Secretary-Treasurer, H. V. Bozel, Oklahoma City.

Pacific Coast Gas Association.—Annual meeting, San Jose, Cal., September 16, 17, 18, 1913. Officers: President, Henry E. Adams, Stockton, Cal.; Secretary-Treasurer, Henry B stwick, 445 Sutter street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, Allentown, Pa., April ———, 1914; Officers, President, J. A. Frick, Allentown, Pa.; Secretary-Treasurer, W. O. Lamson, Jr., West Chester, Pa.

Society of Gas Lighting.—Annual meeting Dec., 11, 1913; monthly meetings, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 29 West 39th street, New York city

Southern Gas Association.—Annual meeting, Mobile, Ala., April 4, 1914. Officers: President, James Ferrier, Rome, Ga.; Secretary-Treasurer, E. D. Brewer, Atlanta, Ga.

Southwestern Electrical and Gas Association.—Annual meeting, May——— 1914, Galveston, Tex. Officers: President, G. H. Gifford, Fort Worth Tex.; Secretary H. S. Cooper, 405 Slaughter Bldg., Dallas, Tex.

Wisconsin Gas Association.—Annual meeting, May ———1914, Milwaukee, Wis. Officers: President, Ewald Haase, Milwaukee, Wis.; Secretary-Treasurer, Henry Harman, Milwaukee, Wis.